

REPORT NUMBER: 208-MGA-2005-012

**VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY**

**Volvo Gothenburg Sweden
2005 Volvo S40 Passenger Car
NHTSA No.: C55901**

**PREPARED BY:
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Test Dates: September 30, 2004 – July 21, 2005

Final Report Date: August 17, 2005

FINAL REPORT

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16. <i>Abstract</i> Compliance tests were conducted on the subject 2005 Volvo S40 in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP208-12 for the determination of FMVSS 208 compliance. Test failures identified were as follows: TEST FAILURES: FMVSS 208 S4.5.1(f)(2)(viii) – Information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system is not provided. Volvo reported that future owner's manual would be updated to include this information in mid-May of 2005. FMVSS 208 S4.5.1 (a) Data Sheet 5 1.4 The air bag maintenance label is not permanently affixed. The label is easily peeled off. Volvo reported that future labels would be made permanent beginning in mid-May 2005. FMVSS 208 S16.1 The 5 th % female passenger dummy had a compression-flexion neck injury (Nce) measure of 1.5 at 57.8 ms after barrier impact during the 40 kmph unbelted frontal impact test. The maximum allowed is 1.0.			
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SECTION 1
PURPOSE OF COMPLIANCE TEST

The tests performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2005 Volvo S40, NHTSA No. C55901, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-12 dated January 14, 2003.

SECTION 2 TESTS PERFORMED

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance

NHTSA No.: C55901
Test Dates: 9/30/04-
7/21/05

The following checked items indicate the tests that were performed:

- | | | |
|-------------------------------------|-----|---|
| ☒ | 1. | Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4)) |
| ☒ | 2. | Air bag labels (S4.5.1) |
| ☒ | 3. | Readiness indicator (S4.5.2) |
| ☒ | 4. | Passenger air bag manual cut-off device (S4.5.4) |
| ☒ | 5. | Lap belt lockability (S7.1.1.5) |
| ☒ | 6. | Seat belt warning system (S7.3) |
| ☒ | 7. | Seat belt contact force (S7.4.4) |
| ☒ | 8. | Seat belt latch plate access (S7.4.4) |
| ☒ | 9. | Seat belt retraction (S7.4.5) |
| ☒ | 10. | Seat belt guides and hardware (S7.4.6) |
| ☒ | 11. | Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) |
| ☒ | 12. | Suppression tests with newborn infant (Part 572, Subpart K) |
| ☒ | 13. | Suppression tests with 3-year-old dummy (Part 572, Subpart P) |
| ☒ | 14. | Suppression tests with 6-year-old dummy (Part 572, Subpart N) |
| ☒ | 15. | Test of reactivation of the passenger air bag system with an unbelted 5 th percentile female dummy |
| ☐ | 16. | Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) |
| ☐ | 17. | Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) |
| ☐ | 18. | Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) |
| ☒ | 19. | Low risk deployment test with 5 th female dummy (Part 572, Subpart O) |
| ☒ | 20. | Impact Tests |
| ☐ | | Frontal Oblique |
| ☐ | | Belted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a)) |
| ☐ | | Unbelted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1)) |
| ☐ | | Unbelted 50 th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b)) |
| ☒ | | Frontal 0° |
| ☐ | | Belted 50 th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a)) |
| ☐ | | Belted 50 th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a)) |
| ☐ | | Belted 5 th female dummy driver (0 to 48 kmph) (S16.1(a)) |
| ☐ | | Belted 5 th female dummy passenger (0 to 48 kmph) (S16.1(a)) |
| ☐ | | Belted 50 th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2)) |
| ☐ | | Unbelted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1)) |
| ☐ | | Unbelted 50 th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b)) |
| ☐ | | Unbelted 50 th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b)) |

	X	Unbelted 5 th female dummy driver (32 to 40 kmph) (S16.1(b))
	X	Unbelted 5 th female dummy passenger (32 to 40 kmph) (S16.1(b))
		40% Offset 0° Belted 5 th male dummy driver and passenger (0 to 40 kmph) (S18.1)
		21. Sled Test: unbelted 50 th male dummy driver and passenger (S13)
		22. FMVSS 204 Indicant Test
	X	23. FMVSS 212 Indicant Test
	X	24. FMVSS 219 Indicant Test
	X	25. FMVSS 301 Frontal Indicant Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed film and high-speed digital video.

The vehicle appears to meet all of the performance requirements to which it was tested with the exception of the following:

FMVSS 208 S4.5.1(f)(2)(viii) – Information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system is not provided. Volvo reported that future owner's manual would be updated to include this information in mid-May of 2005.

FMVSS 208 S4.5.1 (a) Data Sheet 5 1.4 The air bag maintenance label is not permanently affixed. The label is easily peeled off. Volvo reported that future labels would be made permanent beginning in mid-May 2005.

FMVSS 208 S16.1 The 5th% female passenger dummy had a compression-flexion neck injury (Nce) measure of 1.5 at 57.8 ms after barrier impact during the 40 kmph unbelted frontal impact test. The maximum allowed is 1.0.

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance

NHTSA No.: C55901
 Test Date: 6/20/05

5th Percentile Female Low Risk Deployments

5th Percentile Female SN 507 Position 1 (Chin On Module) 6-20-05

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	13
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	68.0
Peak Nij (Ntf)	1.0	0.3
Time (ms)	NA	12.5
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	184.6
Peak Nij (Ncf)	1.0	0.2
Time (ms)	NA	213.6
Neck Tension	2070 N	664
Neck Compression	2520 N	209
Chest g	60 g	14
Chest Displacement	52 mm	6
Left Femur	6805 N	144
Right Femur	6805 N	95

Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

5th Percentile Female SN 510 Position 2 (Chin On Rim) 6-20-05

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	9
Peak Nij (Nte)	1.0	0.3
Time (ms)	NA	16.9
Peak Nij (Ntf)	1.0	0.3
Time (ms)	NA	63.4
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	166.4
Peak Nij (Ncf)	1.0	0.2
Time (ms)	NA	71.1
Neck Tension	2070 N	569
Neck Compression	2520 N	131
Chest g	60 g	18
Chest Displacement	52 mm	16
Left Femur	6805 N	282
Right Femur	6805 N	423

Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

SECTION 3...(continued)

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2005 Volvo S40 NHTSA No.: C55901
 Test Program: FMVSS 208 Compliance Test Date: 7/21/05

40 kmph Frontal Crash

Impact Angle: Zero degrees

Belted Dummies: Yes X No
 Speed Range: 0 to 40 kmph X 32 to 40 kmph
 0 to 48 kmph 0 to 56 kmph

Test Speed: 39.8 kmph Test Weight: 1556.3 kg

Driver Dummy: X 5th female 50th male
 Passenger Dummy: X 5th female 50th male

5th Percentile Female Frontal Crash Test Vehicles certified to S16.1(a), S16.1(b), or S18.1

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	167	135
N _{te}	1.0	0.8	0.2
N _{tf}	1.0	0.1	0.1
N _{ce}	1.0	0.4	0.0
N _{cf}	1.0	0.1	1.5
Neck Tension	2620 N	1356	448
Neck Compression	2520 N	392	1799
Chest g	60 g	40	49
Chest Displacement	52 mm	17	7
Left Femur	6805 N	4652	3920
Right Femur	6805 N	4360	4808

SECTION 4

DISCUSSION OF TESTS

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance

NHTSA No.: C55901
Test Date: 9/30/04-
7/21/05

Data Sheet 5 1.4 The air bag maintenance label is not permanently affixed. The label is easily peeled off. Volvo reported that future labels would be made permanent beginning in mid-May 2005.

Data Sheet 5 2.7.9 Information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system is not provided. Volvo reported that future owner's manual would be updated to include this information in mid-May of 2005.

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

The Volvo S40 passenger air bag suppression telltale light is off when the passenger seat is empty. In several unbelted positions the suppression system classified the Evenflo Medallion 254 as an empty seat; therefore the telltale light was off. A diagnostic tool supplied by Volvo was used to verify that the air bag was suppressed in these cases.

The Volvo S40 passenger air bag suppression system did not classify the Century Next Step booster with a 6-year-old dummy. A three sequence test plan was developed to test the dynamic operation of the system. The results follow:

Sequence One Vehicle in current state.

1. Bring vehicle into Lab and allow to temperature stabilize for 24 hours.
2. Perform an adult classification test. Verify "PASS AIR BAG" light is off.
3. Turn off key.
4. Set the seat back angle to 19 degrees per the Volvo procedure.
5. Perform a suppression test using the Century Next Step high back booster and the 6YO HIII dummy.
6. Repeat step 5 two more times. All performed at mid seat track position

Trial One Failed **Trial Two** Failed **Trial Three** Failed

Sequence Two Vehicle after empty seat learn cycle.

1. Perform a drive sequence on the vehicle that is sufficient to ensure that the seat has learned the empty seat condition.
2. Perform an adult classification test. Verify "PASS AIR BAG" light is off.
3. Turn off key.
4. Set the seat back angle to 19 degrees per the Volvo procedure.
5. Perform a suppression test using the Century Next Step high back booster and the 6YO HIII dummy. Record the status of the Air Bag Light
6. Repeat step 5 two more times. All performed at mid seat track position

Trial One Failed **Trial Two** Failed **Trial Three** Failed

Sequence Three Dynamic system correction functional test. (150 sec minimum correction)

1. Set the seat back angle to 19 degrees per the Volvo procedure.
2. Perform an adult classification test. Verify "PASS AIR BAG" light is off.
3. Turn off key.
4. Perform a suppression test using the Century Next Step high back booster and the 6YO HIII dummy. Record the Status of the Air Bag Light.
5. If the air bag is not suppressed, drive the vehicle on the road (W/CRS) and record the amount of time that elapses until the passenger air bag suppresses. Continue driving for 5 more minutes and monitor the status of the passenger air bag light.
6. Repeat steps 1 to 5 two more times. All performed at mid seat track position

Trial One Initially PAB Active- AB Suppressed after 48 seconds; remained suppressed for 5 minutes of highway driving

Trial Two Initially PAB Active- AB Suppressed after 38 seconds; remained suppressed for 5 minutes of driving on country roads

Trial Three Initially PAB Active- AB Suppressed after 60 seconds; remained suppressed for 5 minutes of driving on proving ground including sine wave road

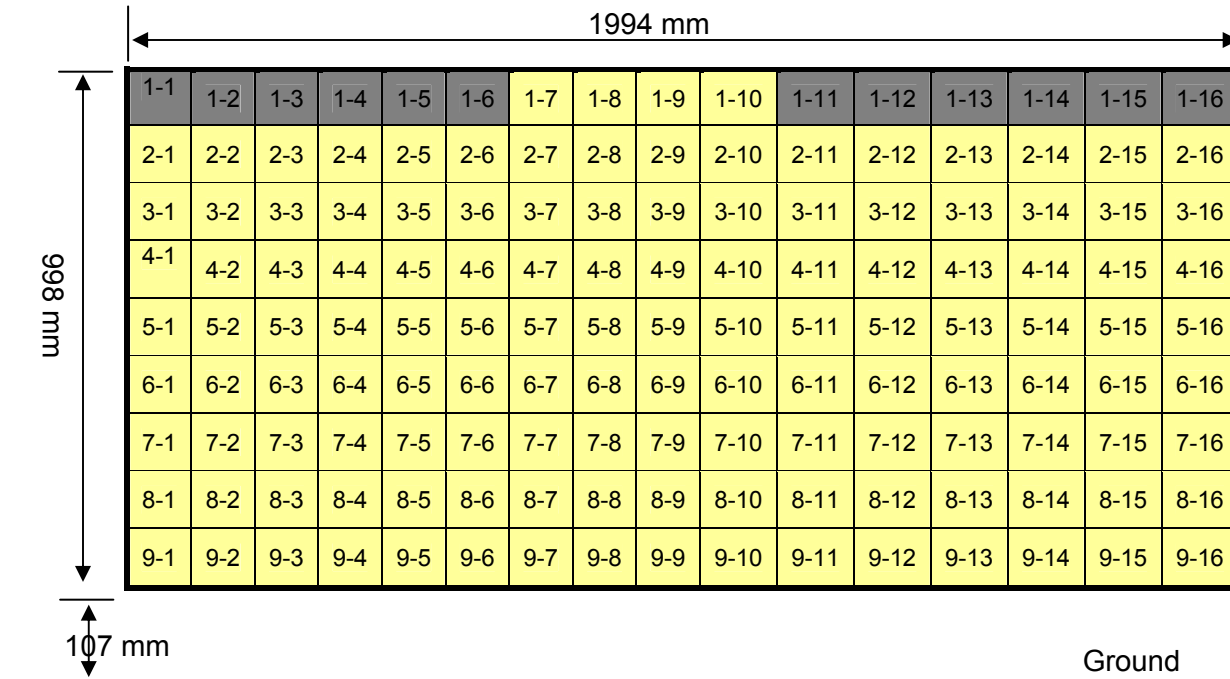
These tests confirmed that the Volvo is equipped with a dynamic algorithm that results in suppression of the air bag within the first 90 seconds of driving even if the air bag is not initially suppressed in the presence of a child restraint.

The high speed digital video for the 5th percentile Position 2 Low Risk Deployment test had corrupted double images for LH and RH views.

The 5th% female passenger dummy had a compression-flexion neck injury (Nce) measure of 1.5 at 57.8 ms after barrier impact during the 40 kmph unbelted frontal impact test. The maximum allowed is 1.0.

An advanced load cell rigid barrier was used for the test. The details of the barrier are shown below. A photograph of the vehicle in relation to the load cell grid is included in Appendix A. Plots of the total force of all 9 rows and an overlay plot of the summed force from each row are included in Appendix B. The vehicle impacted the barrier 8mm higher than the initial target.

144 Load Cell Rigid Barrier
Load Cell Locations on Fixed Barrier



Load Cells are 121 mm x 121 mm with a 7 mm gap between each load cell.

SECTION 5
TEST DATA SHEETS

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance

NHTSA No.: C55901
Test Dates: 9/30/04-
7/21/05

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 COTR Signature: Charles R. Case

NHTSA No.: C55901
 Test Dates: 9/30/04-
7/21/05

Test to be performed for this vehicle are checked below:

- | | |
|-------------------------------------|---|
| ☒ | 1. Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4) |
| ☒ | 2. Air Bag Labels (S4.5.1) |
| ☒ | 3. Readiness Indicator (S4.5.2) |
| ☒ | 4. Passenger Air Bag Manual Cut-off Device (S4.5.4) |
| ☒ | 5. Lap Belt Lockability (S7.1.1.5) |
| ☒ | 6. Seat Belt Warning System (S7.3) |
| ☒ | 7. Seat Belt Contact Force (S7.4.4) |
| ☒ | 8. Seat Belt Latch Plate Access (S7.4.4) |
| ☒ | 9. Seat Belt Retraction (S7.4.5) |
| ☒ | 10. Seat Belt Guides and Hardware (S7.4.6) |
| ☒ | 11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints. |

Section B

☒	Britax Handle with Care 191	☒	Full Rearward	☒	Mid Position	☒	Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
☒	Evenflo First Choice 204	☒	Full Rearward	☒	Mid Position	☒	Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
☒	Graco Infant 8457	☒	Full Rearward	☒	Mid Position	☒	Full Forward

Section C

☒	Britax Roundabout 161	☒	Full Rearward	☒	Mid Position	☒	Full Forward
☒	Century Encore 4612	☒	Full Rearward	☒	Mid Position	☒	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
☒	Evenflo Medallion 254	☒	Full Rearward	☒	Mid Position	☒	Full Forward

- | | |
|-------------------------------------|---|
| ☒ | 12. Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints. |
|-------------------------------------|---|

Section A

- | | | | | | | | |
|-------------------------------------|---|-------------------------------------|---------------|-------------------------------------|--------------|-------------------------------------|--------------|
| ☒ | Cosco Dream Ride 02-719 | ☒ | Full Rearward | ☒ | Mid Position | ☒ | Full Forward |
| ☒ | 13. Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required. | | | | | | |

Section C

X	Britax Roundabout 161	X	Full Rearward	X	Mid Position	X	Full Forward
X	Century Encore 4612	X	Full Rearward	X	Mid Position	X	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
X	Evenflo Medallion 254	X	Full Rearward	X	Mid Position	X	Full Forward

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
X	Century Next Step 4920	X	Full Rearward	X	Mid Position	X	Full Forward
X	Cosco High Back Booster 02-442	X	Full Rearward	X	Mid Position	X	Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

- 14.** Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
	Evenflo Medallion 254		Full Rearward		Mid Position		Full Forward

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

- X** **15.** Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions

X	Sitting on seat with back against seat back (S22.2.2.1)
X	Sitting on seat with back against reclined seat back (S22.2.2.2)
X	Sitting on seat with back not against seat back (S22.2.2.3)
X	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
X	Standing on seat, facing forward (S22.2.2.5)
X	Kneeling on seat facing forward (S22.2.2.6)
X	Kneeling on seat facing rearward (S22.2.2.7)
X	Lying on seat (S22.2.2.8)

- 16.** Suppression tests with representative 3-year-old child in the following positions

	Sitting on seat with back against seat back (S22.2.2.1)
	Sitting on seat with back against reclined seat back (S22.2.2.2)
	Sitting on seat with back not against seat back (S22.2.2.3)
	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
	Standing on seat, facing forward (S22.2.2.5)
	Kneeling on seat facing forward (S22.2.2.6)
	Kneeling on seat facing rearward (S22.2.2.7)
	Lying on seat (S22.2.2.8)

- X** **17.** Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
X	Century Next Step 4920	X	Full Rearward	X	Mid Position	X	Full Forward
X	Cosco High Back Booster 02-442	X	Full Rearward	X	Mid Position	X	Full Forward
X	Evenflo Right Fit 245	X	Full Rearward	X	Mid Position	X	Full Forward

18. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.

Section D

	Britax Roadster 9004		Full Rearward		Mid Position		Full Forward
	Century Next Step 4920		Full Rearward		Mid Position		Full Forward
	Cosco High Back Booster 02-442		Full Rearward		Mid Position		Full Forward
	Evenflo Right Fit 245		Full Rearward		Mid Position		Full Forward

- X 19. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions

X	Sitting on seat with back against seat back (S22.2.2.1)
X	Sitting on seat with back against reclined seat back (S22.2.2.2)
X	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
X	Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

20. Suppression tests with representative 6-year-old child in the following positions

	Sitting on seat with back against seat back (S22.2.2.1)
	Sitting on seat with back against reclined seat back (S22.2.2.2)
	Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
	Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

- X 21. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.

22. Test of Reactivation of the passenger air bag system with a representative 5th percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:

23. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

	Britax Handle with Care 191		Full Rearward		Mid Position		Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
	Evenflo First Choice 204		Full Rearward		Mid Position		Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
	Graco Infant 8457		Full Rearward		Mid Position		Full Forward

Section C

	Britax Roundabout 161		Full Rearward		Mid Position		Full Forward
	Century Encore 4612		Full Rearward		Mid Position		Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
	Evenflo Medallion 254		Full Rearward		Mid Position		Full Forward

	24.	Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions
		Position 1
		Position 2
	25.	Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions
		Position 1
		Position 2
X	26.	Low risk deployment test with 5 th percentile female dummy (Part 572, Subpart O) in the following positions
		Position 1
		Position 2
X	27.	Impact Tests
		Frontal Oblique – Test Speed:
		Belted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
		Unbelted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
		Unbelted 50 th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
X		Frontal 0° - Test Speed: 39.8 kmph
		Belted 50 th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
		Belted 50 th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
		Belted 5 th female dummy driver (0 to 48 kmph) (S16.1(a))
		Belted 5 th female dummy passenger (0 to 48 kmph) (S16.1(a))
		Belted 50 th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
		Unbelted 50 th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
		Unbelted 50 th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
		Unbelted 50 th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
		Unbelted 5 th female dummy driver (32 to 40 kmph) (S16.1(b))
		Unbelted 5 th female dummy passenger (32 to 40 kmph) (S16.1(b))
		40% Offset 0° Belted 5 th male dummy driver and passenger (0 to 40 kmph) (S18.1) – Test Speed:
	28.	Sled Test: Unbelted 50 th male dummy driver and passenger (S13)
	29.	FMVSS 204 Indicant Test
X	30.	FMVSS 212 Indicant Test
X	31.	FMVSS 219 Indicant Test
X	32.	FMVSS 301 Frontal Indicant Test

DATA SHEET 2
REPORT OF VEHICLE CONDITION

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance

NHTSA No.: C55901
Test Dates: 9/30/04-
7/21/05

CONTRACT NO. DTNH22- 03-D-11002
FROM (Lab and rep name): MGA Research Corporation
TO: NHTSA, OVSC (NVS-220)

Date: 7/28/05

PURPOSE: (X) Initial Receipt () Received via Transfer (X) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2005 Volvo S40

MANUFACTURE DATE: 06/04

NHTSA NO. C55901

GVWR: 1960 kg (4320 lbs)

BODY COLOR: White

GAWR (Fr): 1080 kg (2380 lbs)

VIN: YV1MS382852049889

GAWR (Rr): 966 kg (2130 lbs)

ODOMETER READINGS: ARRIVAL (miles): 73 DATE: 9/24/04

COMPLETION (miles): 208 DATE: 7/21/05

PURCHASE PRICE: (\$) 22,890

DEALER'S NAME: Jenkins Imports; 4020 N. Green Bay Ave; Milwaukee, WI 53209

- A. All options listed on window sticker are present on the test vehicle:
X Yes ___ No
- B. Tires and wheel rims are new and the same as listed: X Yes ___ No
- C. There are no dents or other interior or exterior flaws: X Yes ___ No
- D. The vehicle has been properly prepared and is in running condition:
X Yes ___ No
- E. Keyless remote is available and working: X Yes ___ No
- F. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys: X Yes ___ No
- G. Proper fuel filler cap is supplied on the test vehicle: X Yes ___ No
- H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
X Yes ___ No
- I. Place vehicle in storage area: X Yes ___ No
- J. Inspect the vehicle's interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer's specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
X Vehicle OK ___ Conditions reported below

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2005 Volvo S40

NHTSA NO. C55901

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

Spare tire, jack, tools, and trunk interior

Explanation for equipment removal:

Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:

25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY: Jeff Lewandowski

DATE: 7/28/2005

APPROVED BY: David Winkelbauer

DATE: 7/28/2005

#####

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date:

Time:

Odometer:

Lab Rep's Signature:

Title:

Carrier/Customer Rep:

Date:

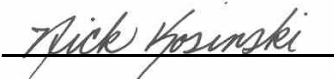
DATA SHEET 3**CERTIFICATION LABEL AND TIRE PLACARD INFORMATION**

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 7/21/05

Certification Label	
Manufacturer:	Volvo Gothenburg Sweden
Date of Manufacture:	06/04
VIN:	YV1MS382852049889
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	Passenger Car
Front Axle GVWR:	1080 kg (2380 lbs)
Rear Axle GVWR:	966 kg (2130 lbs)
Total GVWR:	1960 kg (4320 lbs)

Tire Placard	
Not applicable, vehicle is not a passenger car and does not have a tire placard.	Passenger Car
This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.	Passenger Car
Vehicle Capacity Weight:	365 kg (800 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	3
Total Designated Seating Capacity:	5
Recommended Cold Tire Inflation Pressure Front:	250 kpa (36 psi)
Recommended Cold Tire Inflation Pressure Rear:	250 kpa (36 psi)
Recommended Tire Size:	P205/55R16

Signature: 

Date: 7/21/05

DATA SHEET 4

REAR OUTBOARD SEATING POSITION SEAT BELTS

Test Vehicle: 2005 Volvo S40 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 9/30/04

	Yes	No
Do all rear outboard seating positions have Type 2 seat belts?	X	

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature: *Nick Kosinski*

Date: 9/30/04

DATA SHEET 5 **AIR BAG LABELS (S4.5.1)**

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 9/30/04

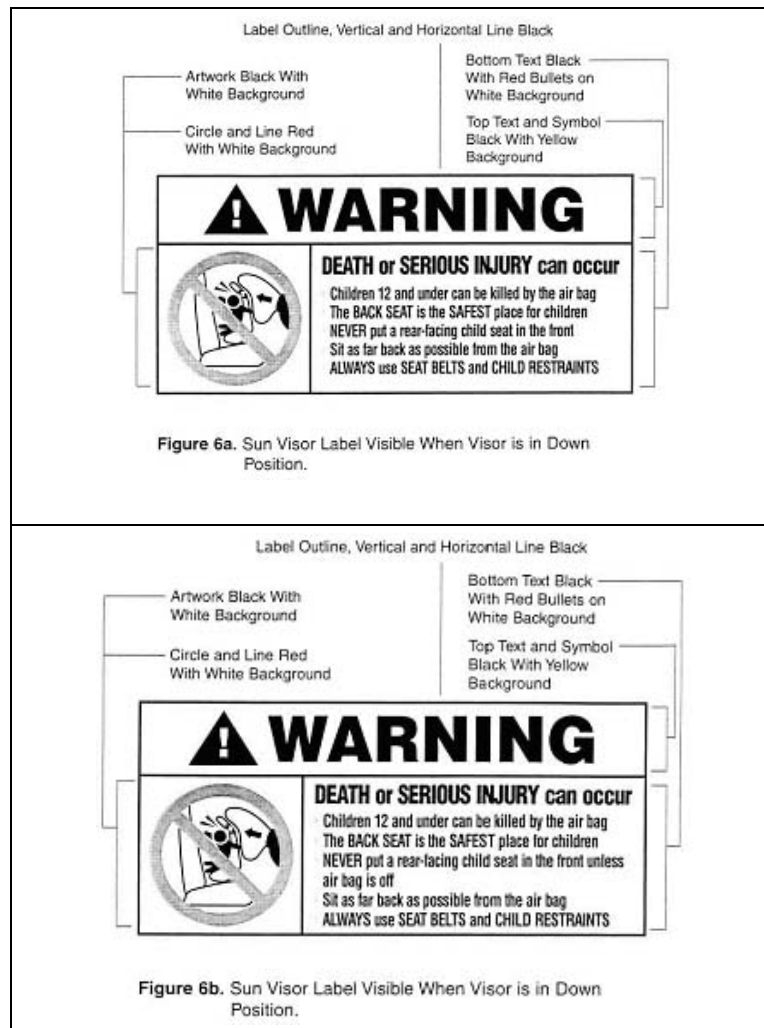
- ☒ 1. Air bag maintenance label and owner's manual instructions: (S4.5.1(a))
- ☒ 1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?
- ☒ Yes, go to 1.2
☐ No – go to 2
- ☒ 1.2 Does the vehicle have a label specifying air bag maintenance or replacement?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 1.3 Does the label contain one of the following?
- ☒ Yes – Pass
☐ No – Fail
- Check applicable schedule:
☒ Schedule on label specifies month and year (Record date January, 2015)
☐ Schedule on label specified vehicle mileage (Record mileage)
☐ Schedule on label specifies interval measured from date on certification label
 (Record interval)
- ☒ 1.4 Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or the sunvisor?
- ☐ Yes – Pass
☒ **No – Fail**
- ☒ 1.5 Is the label lettered in English?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 1.6 Is the label in block capitals and numerals?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 1.7 Are the letters and numerals at least 3/32 inches high?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement? Manual indicates to look at vehicle sticker
- ☒ 2. Does the owner's manual: (S4.5.1(f))
- ☒ 2.1 Include a description of the vehicle's air bag system in an easily understandable format?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?
- ☒ Yes – Pass
☐ No – Fail

- ☒ 2.3 Include a statement that the air bag is a supplement restraint at the front outboard seating position?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer from COTR) (S4.5.1(f)(2))
- ☒ Yes – (Go to 2.7.1)
☐ No – (Go to 3.)
- ☒ 2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?
- ☒ Yes, continue with 2.7.6
☐ No, go to 2.7.7

- ☒ 2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))
- ☒ Yes – Pass
☐ No – Fail
- ☒ 2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that may affect the advanced air bag system? (S4.5.1(f)(2)(vii))
- ☐ Yes – Pass
☒ **No – Fail**
- ☒ 3. Sun Visor Air Bag Warning Label (S4.5.1(b)) Check only one of the following:
- ☐ The vehicle is not certified to meet the requirements of S19, S21, and S23 (Obtain answer from COTR) (S4.5.1(b)(1)) Go to 3.1 and skip 3.2 and 3.3
- ☐ The vehicle is certified to meet the requirements of S19, S21, and S23 before 9/1/03. (Obtain answer from COTR) (S4.5.1(b)(2)) Go to 3.2 and skip 3.1 and 3.3
- ☒ The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. (Obtain answer from COTR) (S4.5.1(b)(3)) Go to 3.3 and skip 3.1 and 3.2
- ☐ 3.1 Vehicles not certified to meet the requirements of S19, S21, and S23.
- ☐ 3.1.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing it? (S4.5.1(b)(1))
- ☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail

3.1.2

Does the label conform in content to the label shown in either Figure 6A or 6B (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1(b)(1)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(1)(iv))



Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

Passenger Side, No – Fail

3.1.3

Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(1)(i))

Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

Passenger Side, No – Fail

3.1.4

Is the message area white with black text? (S4.5.1(b)(1)(ii))

Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

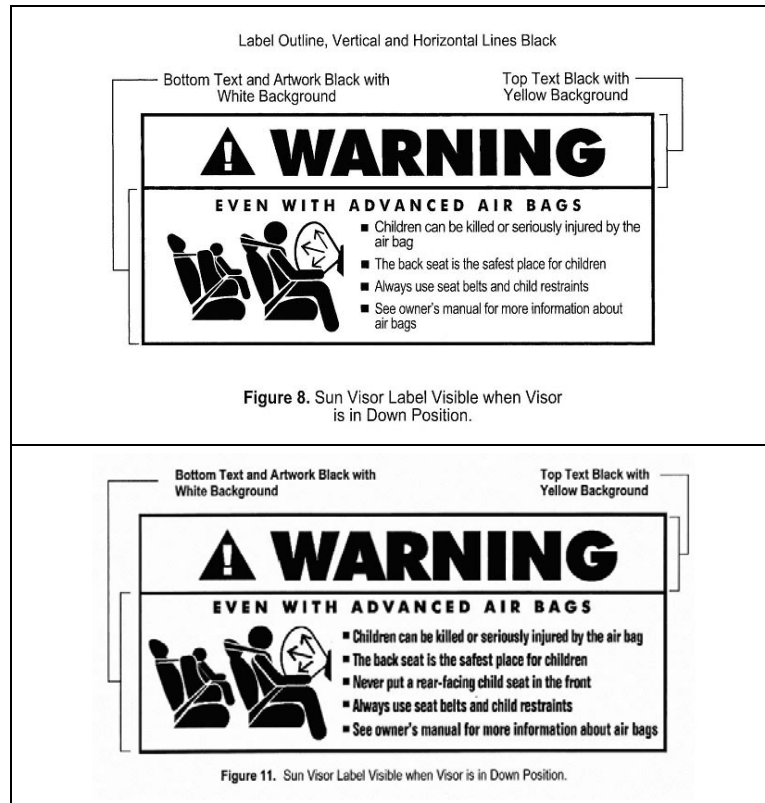
Passenger Side, No – Fail

- ☐ 3.1.5 Is the message area at least 30 cm²? (S4.5.1(b)(1)(ii))
 Driver Side: Length ___, Width ____
 Passenger Side: Length ___, Width ____
 Actual message area ___ cm²
☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.1.6 Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii))
☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.1.7 Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii))
 Actual diameter ___ mm
☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail
- ☐ 3.2 Vehicles certified to meet the requirements of S19, S21, and S23 before 9/1/03.
- ☐ 3.2.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(2))
☐ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☐ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail



3.2.2

Does the label conform in content to the label shown in either Figure 8 or 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(2)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front."(S4.5.1(b)(2)(v))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



3.2.3

Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(2)(i))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail



3.2.4

Is the message area white with black text? (S4.5.1(b)(2)(ii))



- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

☐	3.2.5	Is the message area at least 30 cm ² ? (S4.5.1(b)(2)(ii)) Driver Side: Length_____, Width_____ Passenger Side: Length_____, Width_____ Actual message area _____ cm ²
		☐ Driver Side, Yes – Pass
		☐ Driver Side, No – Fail
		☐ Passenger Side, Yes – Pass
		☐ Passenger Side, No – Fail
☐	3.2.6	Is the pictogram black on a white background? (S4.5.1(b)(2)(iii))
		☐ Driver Side, Yes – Pass
		☐ Driver Side, No – Fail
		☐ Passenger Side, Yes – Pass
		☐ Passenger Side, No – Fail
☐	3.2.7	Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(2)(iii)) Driver Side: Length_____ Passenger Side: Length_____
		☐ Driver Side, Yes – Pass
		☐ Driver Side, No – Fail
		☐ Passenger Side, Yes – Pass
		☐ Passenger Side, No – Fail
☒	3.3	Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))
☒	3.3.1	Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3))
		☒ Driver Side, Yes – Pass
		☐ Driver Side, No – Fail
		☒ Passenger Side, Yes – Pass
		☐ Passenger Side, No – Fail

- X** 3.3.2 Does the label conform in content to the label shown in either Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(b)(3)(v))



Figure 11. Sun Visor Label Visible when Visor is in Down Position.

- X** Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail
- X** 3.3.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(3)(i))
- X** Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail
- X** 3.3.4 Is the message area white with black text? (S4.5.1(b)(3)(ii))
- X** Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail
- X** 3.3.5 Is the message area at least 30 cm²? (S4.5.1(b)(3)(ii))
- Driver Side: Length 11.2 cm , Width 4.1 cm
 Passenger Side: Length 11.2 cm, Width 4.1 cm
 Driver Actual message area 45.92 cm²
 Passenger Actual message area 45.92 cm²
- X** Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail
- X** 3.3.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii))
- X** Driver Side, Yes – Pass
 Driver Side, No – Fail
X Passenger Side, Yes – Pass
 Passenger Side, No – Fail

☒ 3.3.7 Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(3)(iii))
 Driver Side: Length 41 mm
 Passenger Side: Length 41 mm

☒ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☒ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail

☒ 3.4 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))

☒ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☒ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail

☒ 3.5 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))

☒ Driver Side, Yes – Pass
☐ Driver Side, No – Fail
☒ Passenger Side, Yes – Pass
☐ Passenger Side, No – Fail

☒ 3.6 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?

 Yes, go to 3.6.1

 X No, go to 4 (skipping 3.6.1 through 3.6.3)

☐ 3.6.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?

 Yes, go to 3.6.2 and skip 3.6.3

 No, go to 3.6.3 and skip 3.6.2

☐ 3.6.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))

 actual distance

☐ 3.6.3 Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))

 actual distance

 Yes-Pass **No-FAIL**

- ☒ 4. Air Bag Alert Label (S4.5.1(c) (A “Rollover Warning Label” or “Rollover Alert Label” may be on the same side of the driver’s sun visor as the “Air Bag Alert Label.” 575.105(d))
- ☒ 4.1 Is the sun visor warning label visible when the sun visor is in the stowed position?
- ☐ If yes for driver and passenger, go to 5.
- ☐ Driver Side, Yes
- ☒ Driver Side, No
- ☐ Passenger Side, Yes
- ☒ Passenger Side, No
- ☒ 4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c))
- ☒ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☒ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail
- ☒ 4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))
- ☒ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☒ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail
- ☒ 4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

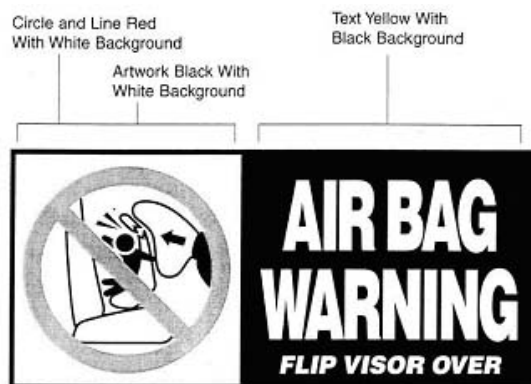


Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

- ☒ Driver Side, Yes – Pass
- ☐ Driver Side, No – Fail
- ☒ Passenger Side, Yes – Pass
- ☐ Passenger Side, No – Fail

☒	4.5	Is the message area black with yellow text? (S4.5.1(c)(1))
	☒	Driver Side, Yes – Pass
	☐	Driver Side, No – Fail
	☒	Passenger Side, Yes – Pass
	☐	Passenger Side, No – Fail
☒	4.6	Is the message area at least 20 cm ² ? (S4.5.1(c)(1))
		Driver Side: Length <u>5.2 cm</u> , Width <u>5.2 cm</u>
		Passenger Side: Length <u>5.2 cm</u> , Width <u>5.2 cm</u>
		Actual message area <u>27.04 cm²</u>
	☒	Driver Side, Yes – Pass
	☐	Driver Side, No – Fail
	☒	Passenger Side, Yes – Pass
	☐	Passenger Side, No – Fail
☒	4.7	Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2))
	☒	Driver Side, Yes – Pass
	☐	Driver Side, No – Fail
	☒	Passenger Side, Yes – Pass
	☐	Passenger Side, No – Fail
☒	4.8	Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2))
		Driver Side Diameter <u>22 mm</u>
		Passenger Side Diameter <u>22 mm</u>
	☒	Driver Side, Yes – Pass
	☐	Driver Side, No – Fail
	☒	Passenger Side, Yes – Pass
	☐	Passenger Side, No – Fail
☒	5.	Label on the Dashboard
☒	5.1	Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain answer from COTR) (S4.5.1(3)(2))
	☒	Yes, go to 5.1.1 and skip 5.2
	☐	No, go to 5.2, skipping 5.1.1 through 5.1.6
☒	5.1.1	Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(2))
	☒	Yes – Pass
	☐	No – Fail
☒	5.1.2	Is the label clearly visible from all front seating positions? (S4.5.1(e)(2))
	☒	Yes – Pass
	☐	No – Fail

- ☒ 5.1.3 Does the label conform in content to the label shown in Figure 9? (S4.5.1(e)(2))
Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(2)(iii))

☒ Yes – Pass
☐ No – Fail



Figure 9. Removable Label on Dash.

- ☒ 5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(2)(i))

☒ Yes – Pass
☐ No – Fail

- ☒ 5.1.5 Is the message white with black text? (S4.5.1(e)(2)(ii))

☒ Yes – Pass
☐ No – Fail

- ☒ 5.1.6 Is the message area at least 30 cm²? (S4.5.1(e)(2)(ii))

Length 11.7 cm , Width 3.7 cm
Actual message area 43.29 cm²

☒ Yes – Pass
☐ No – Fail

- ☐ 5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))

☐ Yes – Pass
☐ No – Fail

- ☐ 5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))

☐ Yes – Pass
☐ No – Fail

☐ 5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1(e)(1)(iii))
Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(2)(iii))

☐ Yes – Pass
☐ No – Fail

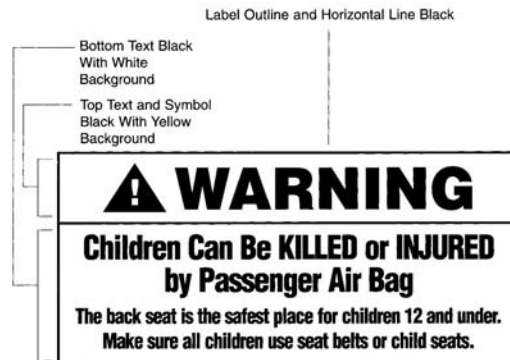


Figure 7. Removable Label on Dash.

☐ 5.2.3 Is the heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(e)(1)(i))

☐ Yes – Pass
☐ No – Fail

☐ 5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))

☐ Yes – Pass
☐ No – Fail

☐ 5.2.5 Is the message area at least 30 cm²? (S4.5.1(e)(1)(ii))

Length __, Width ____

Actual message area __ cm²

☐ Yes – Pass
☐ No – Fail

I certify that I have read and performed each instruction.

Signature: *Thick Kosiński*

Date: 9/30/04

DATA SHEET 6

FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2005 Volvo S40 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 9/30/04

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

- ☒ 1. Is the system totally mechanical? If Yes, this data sheet is complete.
☐ Yes
☒ No
- ☒ 2. Describe the location of the readiness indicator: Right side of instrument cluster
- ☒ 3. Is the readiness indicator clearly visible to the driver?
☒ Yes – Pass
☐ No – Fail
- ☒ 4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?
☒ Yes – Pass
☐ No – Fail
- ☒ 5. Does the vehicle have an on-off switch for the passenger air bag?
☐ If Yes, go to 6
☒ If No, this form is complete.
- ☐ 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
☐ Yes – Pass
☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Nick Kosinski*

Date: 9/30/04

DATA SHEET 7

PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 9/30/04

- | | | |
|-------------------------------------|-----|--|
| ☒ | 1. | Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position? |
| | | ☐ Yes, go to 2 |
| | | ☒ No, this sheet is complete |
| ☐ | 2. | Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4(a)) |
| | | ☐ Yes, go to 3 |
| | | ☐ No, go to 4 |
| ☐ | 3. | Verification of the lack of room for a child restraint in the rear seat behind the driver's seat. (S4.5.4(b)) |
| ☐ | 3.1 | Position the seat's adjustable lumbar supports to that the lumbar support is in its lowest, retracted or deflated adjustment position (S8.1.3) |
| | | ☐ N/A, no lumbar adjustment |
| ☐ | 3.2 | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.02) |
| | | ☐ N/A, no additional support adjustment |
| ☐ | 3.3 | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | ☐ N/A, no independent fore-aft seat cushion adjustment |
| ☐ | 3.4 | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position (S16.2.10.3.1) |
| | | ☐ N/A, no independent seat cushion height adjustment |
| ☐ | 3.5 | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | ☐ N/A, the seat does not have a fore-aft adjustment |
| ☐ | 3.6 | If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1) |
| | | ☐ N/A, no seat height adjustment |
| ☐ | 3.7 | Draw a horizontal reference line on the side of the seat cushion. |
| ☐ | 3.8 | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | ☐ N/A – the seat does not have a fore-aft adjustment. |

☐	3.9	Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position. (S8.1.2)
☐		N/A – the seat does not have fore-aft adjustment.
☐		Mid position
☐		If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:
☐	3.10	If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal.
☐		N/A – No adjustments
☐		Angle of reference line as tested:
☐	3.11	The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
☐		N/A – No seat back angle adjustment
☐		Manufacturers design seat back angle:
☐		Tested seat back angle:
☐	3.12	Is the driver seat a bucket seat?
☐		Yes, go to 3.12.1 and skip 3.12.2
☐		No, go to 3.12.2 and skip 3.12.1
☐	3.12.1	Bucket Seats:
☐	3.12.1.1	Locate and mark a vertical Plane B through the longitudinal centerline of the seat driver's seat cushion. (S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
☐		Record the width of the seat:
☐		Record the distance from the edge of the seat to Plane B:
☐	3.12.1.2	Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.
☐		Distance (mm):
☐		Less than 720 mm – Pass
☐		More then 720 mm – Fail
☐		Go to 4
☐	3.12.2	Bench seats (including split bench seats):
☐	3.12.2.1	Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
☐	3.12.2.2	Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.
☐		Distance (mm):
☐		Less than 720 mm – Pass
☐		More then 720 mm – Fail
☐		Go to 4

☐	4.	Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)
	☐	Yes – Pass
	☐	No – Fail
☐	5.	Is the on-off device separate from the ignition switch? (S4.5.4.2)
	☐	Yes – Pass
	☐	No – Fail
☐	6.	Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)
	☐	Yes – Pass
	☐	No – Fail
☐	7.	Telltale light (S4.5.4.3)
☐	7.1	Is the light yellow? S4.5.4.3(a))
	☐	Yes – Pass
	☐	No – Fail
☐	7.2	Are the words "PASSENGER AIR BAG OFF" (S4.5.4.3(b))
☐	7.2.1	on the telltale?
	☐	Yes – Pass, go to 7.3
	☐	No – go to 7.2.2
☐	7.2.2	within 25 mm of the telltale?
☐		Measurement from the edge of the telltale light (mm):
	☐	Yes – Pass
	☐	No – Fail
☐	7.3	Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c)) (Leave the air bag off for 5 minutes.)
	☐	Yes – Pass
	☐	No – Fail
☐	7.4	Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))
	☐	Yes – Fail
	☐	No – Pass
☐	7.5	Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))
	☐	Yes – Fail
	☐	No – Pass
☐	8.	Owner's Manual
☐	8.1	Does the owner's manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))
	☐	Yes – Pass
	☐	No – Fail

☐	8.2	Does the owner's manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b)) Infants: there is no back seat the rear seat is too small to accommodate a child restraint there is a medical condition that must be monitored constantly Children there is no back seat aged space is not always available in the rear seat 1 to 12: there is a medical condition that must be monitored constantly Medical medical risk causes special risk for passenger condition: greater risk for harm than with the air bag on ☐ Yes – Pass ☐ No – Fail
☐	8.3	Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times? ☐ Yes – Pass ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: _____ *Thick Vinski*

Date: 9/30/04

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2005 Volvo S40 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 9/30/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Front Passenger
------------------------------	------------------------

☐		N/A – no retractor is at this position	
☐		N/A – the retractor is an automatic locking retractor ONLY	
☒	1.	Record test fore-aft seat position: Full Aft (S7.1.1.5(c)(1)) (Any position is acceptable)	
☒	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	4.	Buckle the seat belt. (S7.1.1.5(c)(1))	
☒	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))	
☒	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))	
☒	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?	
		☒ Yes, go to 7.1	
		☐ No, go to 8	
☒	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))	

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
Measured distance between A and B (inches): 55.75 inches
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
Measured force application angle (Spec. 5-15 degrees): 10.9 degrees
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
Measured distance between A and B (inches): 30.25 inches
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 30 lb/sec
Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 31.75 inches
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
13 - 12 = 1.5 inches
☒ Yes – Pass
☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
9 - 13 = 24 inches
☒ Yes – Pass
☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Trick Vosinski*

Date: 9/30/04

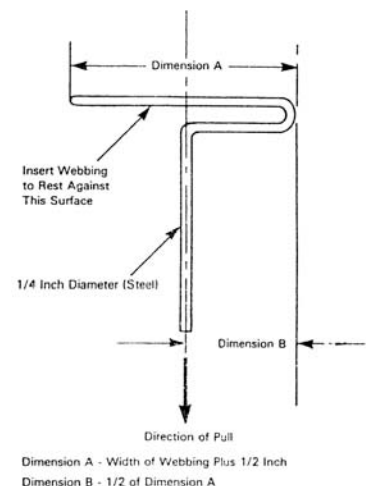


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2005 Volvo S40 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 10/1/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Left Rear Passenger
------------------------------	---------------------

☐		N/A – no retractor is at this position	
☐		N/A – the retractor is an automatic locking retractor ONLY	
☒	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)	
☒	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	4.	Buckle the seat belt. (S7.1.1.5(c)(1))	
☒	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))	
☒	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))	
☒	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?	
		☒ Yes, go to 7.1	
		☐ No, go to 8	
☒	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))	

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 65.75 inches
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 6.1 degrees
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 28 inches
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 35 lb/sec
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 28.5 inches
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ 13 - 12 = 0.5 inches
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ 9 - 13 = 37.25 inches
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Vosinski*

Date: 10/1/04

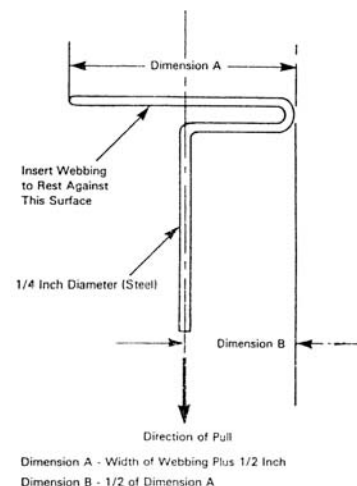


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2005 Volvo S40 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 10/1/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Center Rear Passenger
------------------------------	-----------------------

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 7.1
		No, go to 8
X	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail
X	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 68.0 inches
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 10.1 degrees
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 28.5 inches
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 30 lb/sec
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 29.0 inches
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ 13 - 12 = 0.5 inches
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ 9 - 13 = 39.0 inches
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Kosinski*

Date: 10/1/04

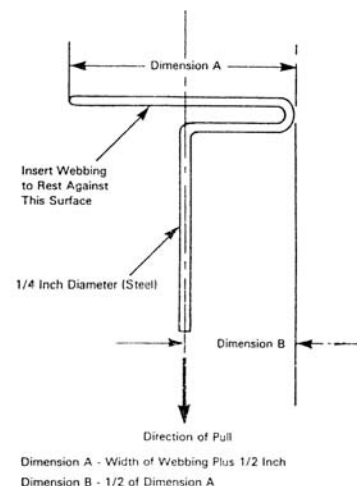


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY

**Passenger cars, trucks, buses, and multipurpose passenger
Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)**

Test Vehicle: 2005 Volvo S40 4 Door
Test Program: FMVSS 208 Compliance
Test Technician: Nick Kosinski

NHTSA No.: C55901
Test Date: 10/1/04

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Right Rear Passenger
------------------------------	----------------------

☐		N/A – no retractor is at this position	
☐		N/A – the retractor is an automatic locking retractor ONLY	
☒	1.	Record test fore-aft seat position: Not Adjustable (S7.1.1.5(c)(1)) (Any position is acceptable)	
☒	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does NOT require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	4.	Buckle the seat belt. (S7.1.1.5(c)(1))	
☒	5.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))	
☒	6.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))	
☒	7.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?	
		☒ Yes, go to 7.1	
		☐ No, go to 8	
☒	7.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))	
		☒ Yes – Pass	
		☐ No – Fail	
☒	8.	Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))	

- ☒ 9. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
- ☒ Measured distance between A and B (inches): 65.0 inches
- ☒ 10. Readjust the belt system so that the webbing between points A and B is at any length that is 5 inches or more shorter than the maximum length of the webbing. (S7.1.1.5(c)(3))
- ☒ 11. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))
- ☒ Measured force application angle (Spec. 5-15 degrees): 10.8 degrees
- ☒ 12. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))
- ☒ Measured distance between A and B (inches): 28.5 inches
- ☒ 13. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))
- ☒ Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 30 lb/sec
- ☒ Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 28.75 inches
- ☒ 14. Subtract the measurement in 12 from the measurement in 13. Is the difference 2 inches or less? (S7.1.1.5(c)(7))
- ☒ $13 - 12 = 0.25$ inches
- ☒ Yes – Pass
- ☐ No – Fail
- ☒ 15. Subtract the measurement in 9 from the measurement in 13. Is the difference 3 inches or more? (S7.1.1.5(c)(8))
- ☒ $9 - 13 = 36.25$ inches
- ☒ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Rich Kosinski*

Date: 10/1/04

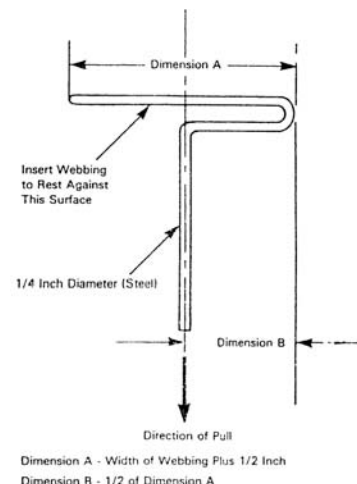


Figure 5. - Webbing Tension Pull Device

DATA SHEET 9

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

- | | | |
|----------|-----|---|
| X | 1. | The occupant is in the driver's seat. |
| X | 2. | The seat belt is in the stowed position. |
| X | 3. | The key is in the "on" or "start" position. |
| X | 4. | The time duration of the audible signal beginning with key "on" or "start" is |
| X | | Seconds: 6.0 |
| X | 5. | The occupant is in the driver's seat. |
| X | 6. | The seat belt is in the stowed position. |
| X | 7. | The key is in the "on" or "start" position. |
| X | 8. | The time duration of the warning light beginning with key "on" or "start" is |
| X | | Seconds: Stays On |
| X | 9. | The occupant is in the driver's seat. |
| X | 10. | The seat belt is in the latched position and with at least 4 inches of belt webbing extended. |
| X | 11. | The key is in the "on" or "start" position. |
| X | 12. | The time duration of the audible signal beginning with key "on" or "start" is |
| X | | Seconds: 0.0 |
| X | 13. | The occupant is in the driver's seat. |
| X | 14. | The seat belt is in the latched position and with at least 4 inches of belt webbing extended. |
| X | 15. | The key is in the "on" or "start" position. |
| X | 16. | The time duration of the warning light beginning with key "on" or "start" is |
| X | | Seconds: 6.0 |
| X | 17. | Complete the following table with the data from 4, 8, 12, and 16 to determine which option is used. |

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt latched & key on or start	Item 16: 6.0		Item 12: 0.0	0 seconds**
	Belt stowed & key on or start	Item 8: Stays On	60 seconds minimum	Item 4: 6.0	4 to 8 seconds
S7.3 (a)(2)	Belt latched & key on or start	Item 16: 6.0	4 to 8 seconds	Item 12: 0.0	0 seconds**
	Belt stowed & key on or start	Item 8: Stays On	4 to 8 seconds	Item 4: 6.0	4 to 8 seconds

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.

** 0 seconds means the light or audible signal are NOT permitted to operate under these conditions.
 See 7/12/00 interpretation to Patrick Raheer of Hogan and Hartson

- | | | |
|-------------------------------------|-----|---|
| ☒ | 18. | The seat belt warning system meets the requirements of (manufacturers may comply with either section) |
| | | ☒ S7.3 (a)(1) |
| | | ☐ S7.3 (a)(2) |
| | | ☐ FAIL – does not meet the requirements of either option |
| ☒ | 19. | Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2)) |
| | | ☐ Fasten seat belts |
| | | ☐ Fasten belts |
| | | ☒ Symbol 101 |
| | | ☐ FAIL – does not used any of the above working or symbol |

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Spick Hrusinski*

Date: 10/1/04

DATA SHEET 10 **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger
------------------------------	---------------------

- | | | |
|----------|----|--|
| X | 1. | Does the vehicle incorporate a webbing tension-relieving device? |
| | | ☐ Yes, this form is complete |
| | | X No, continue with this check sheet |
| X | 2. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) |
| | | X N/A, no lumbar adjustment |
| X | 3. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no additional support adjustment |
| X | 4. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | X N/A, no independent fore-aft seat cushion adjustment |
| X | 5. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no independent seat cushion height adjustment |
| X | 6. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | X N/A, the seat does not have a fore-aft adjustment |
| X | 7. | If the seat cushion height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no seat height adjustment |
| X | 8. | Draw a horizontal reference line on the side of the seat cushion. |
| X | 9. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | X N/A, the seat does not have a fore-aft adjustment |

- ☒ 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
☐ Mid position
 If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Not adjustable
- ☒ 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
☒ N/A, no adjustments
 Reference line angle as tested: N/A
- ☒ 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
☒ N/A, no seat back angle adjustment
☒ Manufacturer's design seat back angle: N/A
☒ Tested seat back angle: Fixed Angle
- ☒ 13. Position the test dummies according to dummy position placement instructions in Appendix F.
- ☒ 14. Fasten the seat belt latch.
- ☒ 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.
- ☒ 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
☒ Contact Force (lb): 0.32 lbs
☒ 0.0 to 0.7 pounds – Pass
☐ Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Tyck Kozinski*

Date: 10/1/04

DATA SHEET 10 **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger
------------------------------	-----------------------

- | | |
|----------|---|
| X | 1. Does the vehicle incorporate a webbing tension-relieving device? |
| | ☐ Yes, this form is complete |
| | X No, continue with this check sheet |
| X | 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) |
| | X N/A, no lumbar adjustment |
| X | 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | X N/A, no additional support adjustment |
| X | 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | X N/A, no independent fore-aft seat cushion adjustment |
| X | 5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | X N/A, no independent seat cushion height adjustment |
| X | 6. Put the seat in its full rearward position. (S16.2.10.3.1) |
| | X N/A, the seat does not have a fore-aft adjustment |
| X | 7. If the seat cushion height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1) |
| | X N/A, no seat height adjustment |
| X | 8. Draw a horizontal reference line on the side of the seat cushion. |
| X | 9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | X N/A, the seat does not have a fore-aft adjustment |

- ☒ 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
☐ Mid position
 If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Not adjustable
- ☒ 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
☒ N/A, no adjustments
 Reference line angle as tested: N/A
- ☒ 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
☒ N/A, no seat back angle adjustment
☒ Manufacturer's design seat back angle: N/A
☒ Tested seat back angle: Fixed Angle
- ☒ 13. Position the test dummies according to dummy position placement instructions in Appendix F.
- ☒ 14. Fasten the seat belt latch.
- ☒ 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.
- ☒ 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
☒ Contact Force (lb): 0.56 lbs
☒ 0.0 to 0.7 pounds – Pass
☐ Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Tyck Kozinski*

Date: 10/1/04

DATA SHEET 10 **BELT CONTACT FORCE (S7.4.3)**

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger
------------------------------	----------------------

- | | | |
|----------|----|--|
| X | 1. | Does the vehicle incorporate a webbing tension-relieving device? |
| | | ☐ Yes, this form is complete |
| | | X No, continue with this check sheet |
| X | 2. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3) |
| | | X N/A, no lumbar adjustment |
| X | 3. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | X N/A, no additional support adjustment |
| X | 4. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | X N/A, no independent fore-aft seat cushion adjustment |
| X | 5. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no independent seat cushion height adjustment |
| X | 6. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | X N/A, the seat does not have a fore-aft adjustment |
| X | 7. | If the seat cushion height is adjustable, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | X N/A, no seat height adjustment |
| X | 8. | Draw a horizontal reference line on the side of the seat cushion. |
| X | 9. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | X N/A, the seat does not have a fore-aft adjustment |

- ☒ 10. Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the middle fore-aft position for this test. (S8.1.2)
☐ Mid position
 If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat: Not adjustable
- ☒ 11. If seat adjustments other than fore-aft are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2.1)
☒ N/A, no adjustments
 Reference line angle as tested: N/A
- ☒ 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
☒ N/A, no seat back angle adjustment
☒ Manufacturer's design seat back angle: N/A
☒ Tested seat back angle: Fixed Angle
- ☒ 13. Position the test dummies according to dummy position placement instructions in Appendix F.
- ☒ 14. Fasten the seat belt latch.
- ☒ 15. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.
- ☒ 16. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.
☒ Contact Force (lb): 0.26 lbs
☒ 0.0 to 0.7 pounds – Pass
☐ Greater than 0.7 pounds – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Tyck Kozinski*

Date: 10/1/04

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car
------------------------------	---

- | | | |
|--|-----|--|
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 1. | Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (8.1.3) |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, no lumbar adjustment |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 2. | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2) |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, no additional support adjustment |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 3. | If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1) |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, no independent fore-aft seat cushion adjustment |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 4. | If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1) |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, no independent seat cushion height adjustment |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 5. | Put the seat in its full rearward position. (S16.2.10.3.1) |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, the seat does not have a fore-aft adjustment |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 6. | If the seat height is adjustable, put it in the full down position. (S16.2.10.3.1) |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, no seat height adjustment |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 7. | Draw a horizontal reference line on the side of the seat cushion |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 8. | Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward. |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, the seat does not have a fore-aft adjustment. |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 9. | Using only the controls that change the seat in the fore-aft direction, place the seat in the full rearward position and then place the seat in the forward most fore-aft position for this test. (S10.7) |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | 10. | If seat adjustments, other than fore-aft, are present and the horizontal reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. |
| | | <div style="background-color: yellow; width: 20px; height: 15px; display: inline-block;"></div> N/A, no adjustments |
| <div style="background-color: yellow; width: 20px; height: 15px; margin: 0 auto;"></div> | | Reference line angle as tested: |

- ☐ 11. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)
- ☐ N/A, no seat back angle adjustment
- ☐ Manufacturer's design seat back angle:
- ☐ Tested seat back angle:
- ☐ 12. Position the test dummy using the procedures in Appendix A. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix A positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) Include the positioning check sheet with this form.
- ☐ 13. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.
- ☐ 14. Attach the inboard reach string to the base of the head following the instructions on Figure 3.
- ☐ 15. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.
- ☐ 16. Place the latch plate in the stowed position.
- ☐ 17. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
- ☐ Yes – Pass
- ☐ No
- ☐ 18. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
- ☐ Yes – Pass
- ☐ No
- ☐ 19. Is the latch plate within the inboard (item 17) or outboard (item 18) reach envelope?
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 20. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?
- ☐ Yes – Pass
- ☐ No – Fail

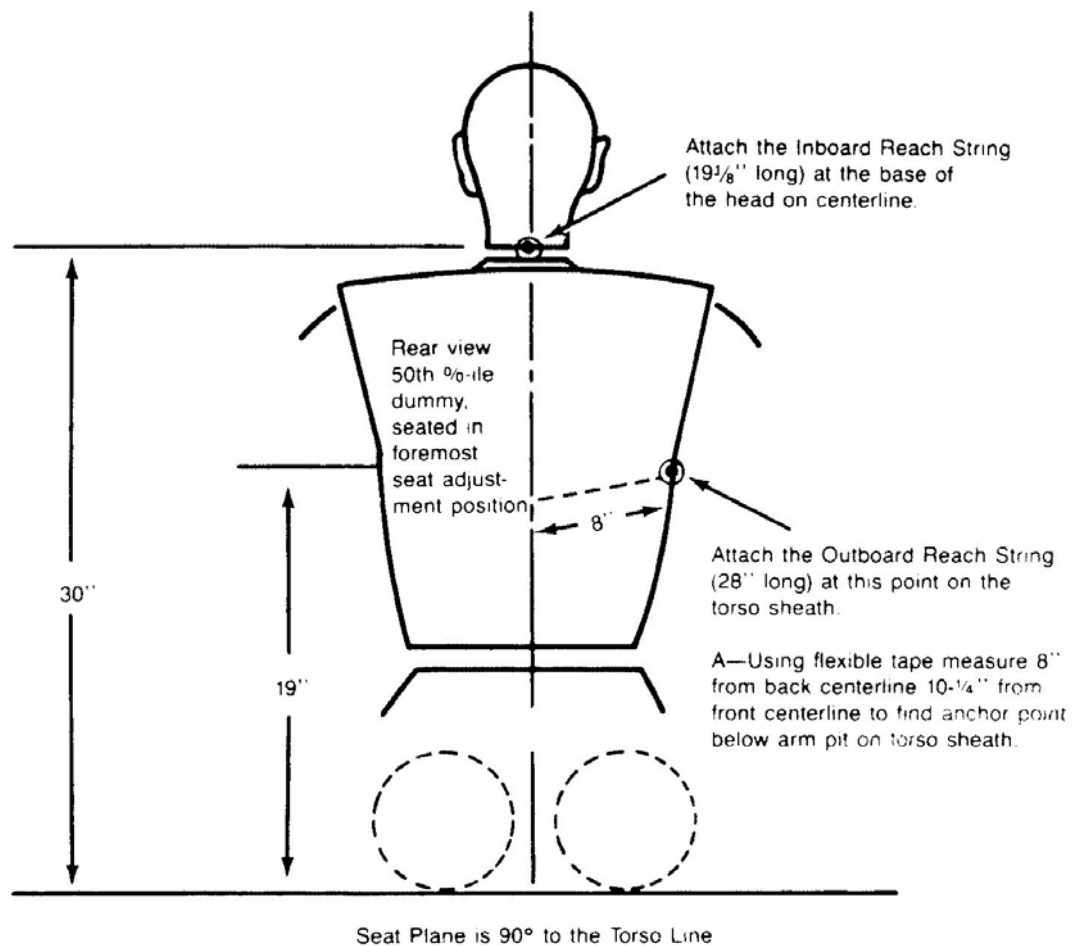


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

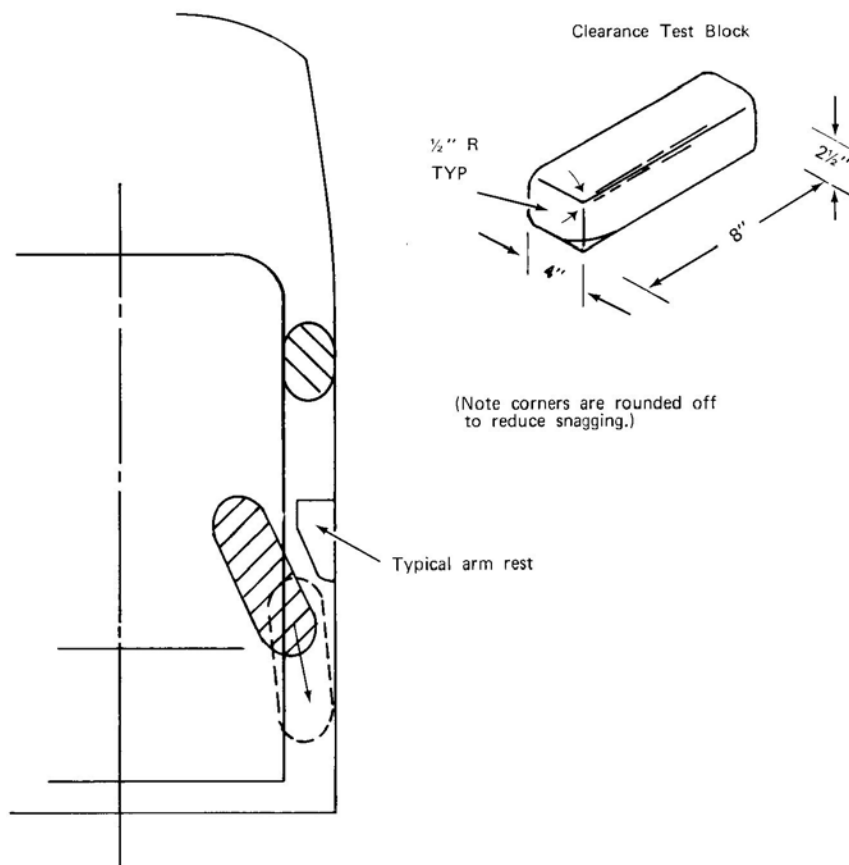


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Vrsinski*

Date: 10/1/04

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 9/30/04

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car
GVWR:	1960 kg

- X**

1. Is the vehicle a passenger car or walk-in van-type vehicle?

X

Yes, this form is complete

No
2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

N/A, no lumbar adjustment
3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)

N/A, no additional support adjustment
4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position.) (S16.2.10.3.1)

N/A, no independent fore-aft seat cushion adjustment
5. If the seat cushion height adjusts independent of the seat back, set this adjustment to the full down position. (S16.2.10.3.1)

N/A, no independent seat cushion height adjustment
6. Put the seat in its full rearward position.

N/A, the seat does not have a fore-aft adjustment
7. If the seat height is adjustable, put it in the full down position. (S8.1.2)

N/A, no seat adjustment
8. Draw a horizontal line on the side of the seat cushion.
9. Using only the controls that change the seat in the fore-aft direction, mark the fore-aft seat positions. Mark the side of the seat and a reference position directly below on a part of the vehicle that does not adjust. For manual seats, move the seat forward one detent at a time and mark each detent as was done for the full rearward position. For power seats, mark only the full rearward, middle, and full forward positions. Label three of the positions with the following: F for full forward, M for mid-position (if there is no mid position, label the closest adjustment position to the rear of the mid-point), and R for full rearward.

N/A, the seat does not have a fore-aft adjustment.
10. Using only the controls that change the seat in the fore-aft direction, place the seat in the middle fore-aft position. (S8.1.2)

If there is no mid position, put the seat in the closest adjustment position to the rear of the midpoint. Describe the location of the seat:

- ☐ 11. If seat adjustments, other than fore-aft, are present and the reference line is no longer horizontal, use those adjustments to maintain the reference line as closely as possible to the horizontal. (S16.2.10.3.2)
- ☐ N/A – no seat adjustment
- ☐ Reference angle as tested:
- ☐ 12. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S8.1.3)
- ☐ N/A – no seat back angle adjustment
- ☐ Manufacturer's design seat back angle:
- ☐ Tested seat back angle:
- ☐ 13. If adjustable, set the head restraint at the full up and full forward position. (S8.1.3) Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible.
- ☐ N/A – no head restraint adjustment
- ☐ 14. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
- ☐ N/A – no adjustable upper seat belt anchorage
- ☐ Manufacturer's specified anchorage position:
- ☐ Tested anchorage position:
- ☐ 15. Is the driver seat a bucket seat?
- ☐ Yes, go to 15.1 and skip 15.2.
- ☐ No, go to 15.2 and skip 15.1
- ☐ 15.1 Bucket seats - Locate and mark a vertical Plane B through the longitudinal centerline of the seat. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle.
- ☐ Record the width of the seat:
- ☐ Record the distance from the edge of the seat to Plane B.
- ☐ 15.2 Bench seats (including split bench seats):
- ☐ Driver seat: Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline.
- ☐ Passenger seat: Locate and mark a vertical longitudinal Plane B on the seat that is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
- ☐ Distance from the vehicle centerline to the center of the steering wheel:
- ☐ Distance from the vehicle centerline to Plane B:
- ☐ 16. Stow outboard armrests that are capable of being stowed. (S7.4.5)
- ☐ 17. Remove the arms of a Subpart E dummy and place it in the seat such that the midsagittal plane is coincident with Plane B and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)
- ☐ 18. Rest the thighs on the seat cushion

- ☐ 19. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
- ☐ Horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
 - ☐ Vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
 - ☐ Pelvic angle (20° to 25°)
- ☐ 20. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches. Measured distance (10.6 inches) (S10.5):
- ☐ 21. To the extent practicable keep the thighs and the legs in a vertical plane (S10.5) and rest the thighs on the seat cushion while resting the feet on the floorpan or toe board.
- ☐ 22. Fasten the seat belt around the dummy.
- ☐ 23. Remove all slack from the lap belt portion. (S10.9)
- ☐ 24. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)
- ☐ 25. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
- ☐ Pound load applied:
- ☐ 26. Is the belt system equipped with a tension relieving device?
- ☐ Yes, continue
 - ☐ No, go to 27
- ☐ 26.1 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 25.
- ☐ 27. Check the statement that applies to this test vehicle:
- ☐ 27.1 The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.
- ☐ Pass
- ☐ 27.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.
- ☐ Pass
- ☐ 27.3 Neither 27.1 or 27.2 apply
- ☐ Fail
- ☐ 28. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?
- ☐ Yes – Pass
 - ☐ No – Fail

- ☐ 29. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?
- ☐ N/A
- ☐ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Nick Vosinski*

Date: 9/30/04

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger
------------------------------	---------------------

- | | | | |
|--|----|--|--|
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 1. | Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 2 </div> | |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 2. | Is the seat removable? (S7.4.6.1(b))
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 3 </div> | |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 3. | Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, this form is complete
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, go to 4 </div> | |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;">X</div> | 4. | Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes, go to 5
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;">X</div> No, this form is complete </div> | |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 5. | Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail
 Identify the part(s) on top or above the seat.
 <div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Seat belt latch plate
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Buckle
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Seat belt webbing </div> </div> | |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 6. | Are the remaining two seat belt parts accessible under normal conditions?
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail </div> | |
| <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; margin: 0 auto;"></div> | 7. | The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
<div style="margin-left: 20px;"> <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> Yes – Pass
 <div style="background-color: yellow; border: 1px solid black; padding: 2px; width: 20px; display: inline-block;"></div> No – Fail </div> | |

- ☐ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Krsinski*

Date: 10/1/04

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Center Rear Passenger
------------------------------	-----------------------

- | | | | |
|----------|----|--|--|
| X | 1. | Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b)) | |
| | | ☐ Yes, this form is complete | |
| | | ☒ No, go to 2 | |
| X | 2. | Is the seat removable? (S7.4.6.1(b)) | |
| | | ☐ Yes, this form is complete | |
| | | ☒ No, go to 3 | |
| X | 3. | Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b)) | |
| | | ☐ Yes, this form is complete | |
| | | ☒ No, go to 4 | |
| X | 4. | Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a)) | |
| | | ☒ Yes, go to 5 | |
| | | ☐ No, this form is complete | |
| X | 5. | Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a)) | |
| | | ☒ Yes – Pass | |
| | | ☐ No – Fail | |
| | | Identify the part(s) on top or above the seat. | |
| | | ☒ Seat belt latch plate | |
| | | ☒ Buckle | |
| | | ☒ Seat belt webbing | |
| X | 6. | Are the remaining two seat belt parts accessible under normal conditions? | |
| | | ☒ Yes – Pass | |
| | | ☐ No – Fail | |
| X | 7. | The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2) | |
| | | ☒ Yes – Pass | |
| | | ☐ No – Fail | |

- ☒ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
- ☒ Yes – Pass
☐ No – Fail
- ☒ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
- ☒ Yes – Pass
☐ No – Fail
- ☒ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
- ☐ Yes – Pass
☐ No – Fail
☒ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Ynsinski*

Date: 10/1/04

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2005 Volvo S40 4 Door
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 10/1/04

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger
------------------------------	----------------------

- | | | |
|--------------------------|----|--|
| X | 1. | Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b)) |
| | | ☐ Yes, this form is complete |
| | | X No, go to 2 |
| X | 2. | Is the seat removable? (S7.4.6.1(b)) |
| | | ☐ Yes, this form is complete |
| | | X No, go to 3 |
| X | 3. | Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b)) |
| | | ☐ Yes, this form is complete |
| | | X No, go to 4 |
| X | 4. | Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a)) |
| | | ☐ Yes, go to 5 |
| | | X No, this form is complete |
| ☐ | 5. | Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a)) |
| | | ☐ Yes – Pass |
| | | ☐ No – Fail |
| | | Identify the part(s) on top or above the seat. |
| | | ☐ Seat belt latch plate |
| | | ☐ Buckle |
| | | ☐ Seat belt webbing |
| ☐ | 6. | Are the remaining two seat belt parts accessible under normal conditions? |
| | | ☐ Yes – Pass |
| | | ☐ No – Fail |
| ☐ | 7. | The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2) |
| | | ☐ Yes – Pass |
| | | ☐ No – Fail |

- ☐ 8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ 10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)
- ☐ Yes – Pass
- ☐ No – Fail
- ☐ N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Krasinski*

Date: 10/1/04

DATA SHEET 14

MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C55901
 Test Date: 7/21/05

1. Driver Designated Seating Position:

- | | | |
|-------------------------------------|------|--|
| ☒ | 1.1 | Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1) |
| | | ☐ N/A – No lumbar adjustment |
| ☒ | 1.2 | Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position (S16.2.10.2) |
| | | ☒ N/A – No additional support adjustment |
| ☒ | 1.3 | Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. |
| ☒ | 1.4 | Draw a line (seat cushion reference line) through the seat cushion reference point. |
| ☒ | 1.5 | Using only the controls that primarily move the seat in the fore-aft direction, move the seat cushion reference point to the rearmost position. |
| ☒ | 1.6 | If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position (S16.2.10.3) |
| | | ☒ N/A – No independent fore-aft seat cushion adjustment |
| ☒ | 1.7 | Using any part of any control, other than the parts just used for fore-aft positioning, determine the range of angles of the seat cushion reference line and set the seat cushion reference line at the mid-angle. |
| ☒ | | Maximum Angle: 5.7° Nose Down |
| ☒ | | Minimum Angle: 5.2° Nose Up |
| ☒ | | Mid-angle: 0.3° Nose Down |
| ☒ | 1.8 | If the seat and/or seat cushion height is adjustable, use any part of any control other than those which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.7. |
| | | ☐ N/A – No seat height adjustment; Mid Height = Mid Angle |
| ☒ | 1.9 | Using only the controls that primarily move the seat in the fore-aft direction, verify the seat is in the rearmost position. |
| ☒ | 1.10 | Using only the controls that primarily move the seat in the fore-aft direction, mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. |
| ☒ | 1.11 | Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position. |
| ☒ | 1.12 | Using any controls, other than the controls that primarily move the seat and/or seat cushion in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7. |

- ☒ 1.13 Using only the controls that primarily move the seat and/or seat cushion in the fore-aft direction, place the seat in the mid-fore-aft position.
- ☒ 1.14 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.
- ☒ 1.15 Using only the controls that change the seat in the fore-aft direction, place the seat in the foremost position.
- ☒ 1.16 Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.7.
- ☒ 1.17 Visually mark for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer.
- ☐ N/A – No seat back angle adjustment
- ☒ Manufacturer's design seat back angle: 19.0 degrees on seat back frame
- ☒ 1.18 Is the seat a bucket seat?
- ☒ Yes, go to 1.18.1 and skip 1.18.2
- ☐ No, go to 1.18.2 and skip 1.18.1
- 1.18.1 Bucket seats:
- ☒ Locate and mark for future reference the longitudinal centerline of the seat cushion. The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle. (S16.3.1.10)
- ☒ Record the width of the seat cushion: Used SRP Provided By Manufacturer
- ☒ One half the width of the seat cushion is: Used SRP Provided By Manufacturer
- ☒ Record the distance from the edge of the seat cushion to the seat mark: 255 mm
- 1.18.2 Bench seats:
- ☐ Locate and mark for future reference the longitudinal line on the seat cushion that marks the longitudinal vertical plane through the centerline of the steering wheel.
2. Passenger Designated Seating Position
- ☒ 2.1 Is the seat adjustable independent of the driver seating position?
- ☒ Yes, go to 2.2
- ☐ No, go to 2.18
- ☒ 2.2 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions (S16.2.10.1, S20.1.9.1, S22.1.7.1)
- ☒ N/A – No lumbar adjustment
- ☒ 2.3 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S22.1.7.2)
- ☒ N/A – No additional support adjustment
- ☒ 2.4 Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.
- ☒ 2.5 Draw a line (seat cushion reference line) through the seat cushion reference point.
- ☒ 2.6 Using only the controls that primarily move the seat in the fore-aft direction, move the seat cushion reference point to the rearmost position.

☒	2.7	If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position (S16.2.10.3, S20.1.9.3, S22.1.7.3)
☒		N/A – No independent fore-aft seat cushion adjustment.
☒	2.8	Using any part of the control, other than the parts just used for fore-aft positioning, determine the range of angles of the seat cushion reference line and set the seat cushion reference line at the mid-angle.
☒		Maximum Angle: Not Adjustable
☒		Minimum Angle: Not Adjustable
☒		Mid-angle: Not Adjustable
☒	2.9	If the seat and/or seat cushion height is adjustable, use any part of any control other than those which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-range angle.
☒		N/A – No seat height adjustment
☒	2.10	Using only the controls that primarily move the seat and/or seat cushion in the fore-aft direction, verify the seat is in the rearmost position.
☒	2.11	Using only the controls that primarily move the seat in the fore-aft direction, mark for future reference the fore-aft seat positions. Mark each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and mark each detent. For power seats, mark only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.
☒	2.12	Using only the controls that primarily move the seat in the fore-aft direction, place the seat in the rearmost position.
☒	2.13	Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.
☒		N/A – No seat height adjustment Go to 2.18
☐	2.14	Using only the controls that primarily move the seat in the fore-aft direction, place the seat in the mid-fore-aft position.
☐	2.15	Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.
☐	2.16	Using only the controls that change the seat in the fore-aft direction, place the seat in the foremost position.
☐	2.17	Using any controls, other than the controls that primarily move the seat in the fore-aft direction, find and visually mark for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 2.8.
☒	2.18	Visually mark for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a 50 th percentile adult male in the manner specified by the manufacturer.
☐		N/A – No seat back angle adjustment
☐		N/A – The seat back angle adjustment is controlled by the setting of the driver seat back angle.

☒		Manufacturer's design seat back angle: 19.0 degrees on seat back frame
☒		Actual seat back angle: 19.0 degrees on seat back frame
☒	2.19	Is the seat a bucket seat?
☒		Yes, go to 2.19.1 and skip 2.19.2
☐		No, go to 2.19.2 and skip 2.19.1
		2.19.1 Bucket seats:
☒		Locate and mark for future reference the longitudinal centerline of the seat cushion. (S20.2.1.3, S22.2.1.3) The longitudinal centerline of a bucket seat cushion is determined at the widest part of the seat cushion. Measure perpendicular to the longitudinal centerline of the vehicle. (S20.1.10)
☒		Record the width of the seat cushion: Used SRP Provided By Manufacturer
☒		One half the width of the seat cushion is: Used SRP Provided By Manufacturer
☒		Record the distance from the edge of the seat cushion to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) 255 mm
		2.19.2 Bench seats:
☐		Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3)
☐		Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel:
☐		Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.)
☒	3.	Head Restraints
☐		N/A, vehicle contains automatic head restraints
☐		N/A, there is no head restraint adjustment
☒	3.1	Left outboard
☒	3.1.1	Adjust the head restraint to its lowest position. (S16.3.4.2)
☒	3.1.2	Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. Mark the foremost position.
☒	3.1.3	Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and mark a horizontal plane through the midpoint of this distance.
☒		Vertical height of head restraint (mm): 240 mm
☒		Mid-point height (mm): 120 mm
☒	3.2	Right outboard
☒	3.2.1	Adjust the head restraint to its lowest position. (S16.3.4.2)
☒	3.2.2	Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. Mark the foremost position.
☒	3.2.3	Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and mark a horizontal plane through the midpoint of this distance.
☒		Vertical height of head restraint (mm): 240 mm
☒		Mid-point height (mm): 120 mm

- ☒ 4. Steering Wheel
- ☒ 4.1 Is the steering wheel adjustable up and down and/or in and out?
- ☒ Yes, go to 4.2
- ☐ No, this form is complete
- ☒ 4.2 Find and **mark** for future reference each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.
- ☐ N/A, steering wheel is not adjustable up and down
- ☒ 4.3 Find and **mark** for future references each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.
- ☐ N/A, steering wheel is not adjustable in and out
- ☒ 5. Driver Low Risk Deployment
- ☐ N/A, no low risk deployment tests scheduled
- ☒ 5.1 Position the steering wheel so the front wheels are in the straight-ahead position. (S26.2.1)
- ☒ 5.2 Position any adjustable parts of the steering controls to the mid-position as determined in item 3 above. If a mid-position adjustment is not achievable, position the controls to the next lowest detent position. (S26.2.1)
- ☒ 5.3 Locate the vertical plane parallel to the vehicle longitudinal centerline through the geometric center of the opening through which the driver air bag deploys into the occupant compartment. This is referred to as "Plane E". (Check determination method below.) (S26.2.6)
- ☐ Plane E determined using manufacturer's information supplied by the COTR.
- ☒ Plane E determined by test lab personnel and approved by the COTR.
Used centerline of steering wheel.
(Include supporting documentation in the test report. See in Appendix D on page D-35)

	Ey (mm)
"Plane E" Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

- ☒ 5.4 Locate the horizontal plane through the highest point of the air bag module cover. This is referred to as "Plane F." (Check determination method below.) (S26.2.6)
- ☐ Plane F determined using manufacturer's information supplied by the COTR .
- ☒ Plane F determined by test lab personnel and approved by the COTR.
Used top of air bag module.
(Include supporting documentation in the test report. See in Appendix D on page D-35)

	Fz (mm)
"Plane F" Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

☒ 6. Passenger Low Risk Deployment – Planes C and D

- ☒ N/A, no low risk deployment tests scheduled
- ☐ 6.1 Locate the horizontal plane through the geometric center of the opening through which the right front air bag deploys into the occupant compartment. This is referred to as "Plane C." (Check location method below.) (S22.4.1.3)
- ☐ Plane C located using manufacturer's information supplied by the COTR.
(Include manufacturer's information in the test report.) OR
- ☐ Plane C located by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

	Cz (mm)
"Plane C" Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

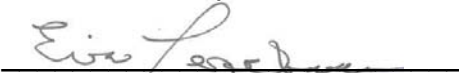
- ☐ 6.2 Locate the vertical plane parallel to the vehicle longitudinal centerline through the geometric center of the opening through which the right front air bag deploys into the occupant compartment. This is referred to as "Plane D." (Check determination method below.) (S22.4.1.2)
- ☐ Plane D determined using manufacturer's information supplied by the COTR.
(Include manufacturer's information in the test report.) OR
- ☐ Plane D determined by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

	Dy (mm)
"Plane D" Measurement:	
Measured:	
Specified:	
Verify Measured Equals Specified +/- 6mm:	

- ☐ 6.3 **Mark** the intersection of Planes C and D on the instrument panel.
- ☒ 7. 5th Female Dummy
Mark a point on the chin of the dummy 40 mm below the center of the mouth. (Chin Point) (S26.2.6)
- ☐ 8. 6-Year-Old Dummy
Locate and **mark** a point on the front of the dummy's chest jacket on the midsagittal plane which is 139 mm (5.5 in) $\pm$ 3 mm ($\pm$ 0.1 in) along the surface of the skin down from the top of the skin at the neck line. Designate this point as "Point 1." (S24.4.1.1)
☐ "Point 1" measurement (mm):
- ☐ 9. 3-Year-Old Dummy
Locate and **mark** a point on the front of the dummy's chest jacket on the midsagittal plane which is 114 mm (4.5 in) $\pm$ 3 mm ($\pm$ 0.1 in) along the surface of the skin down from the top of the skin at the neck line. Designate this point as "Point 1." (S22.4.1.1)
☐ "Point 1" measurement (mm +/- 3 mm):

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 7/21/05

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C55901	TEST DATE:	1/14/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Handle With Care 191
DATE OF MANUFACTURE:	5-26-2000

Base: ☐ On ☐ Off ☒ N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward 6 *	133	Suppressed	N/A
	Middle	130	Suppressed	N/A
	Rearward	131	Suppressed	N/A
Unbelted Rear Facing	Forward 9 *	N/A	Suppressed	N/A
	Middle	N/A	Suppressed	N/A
	Rearward	N/A	Suppressed	N/A
Unbelted Forward Facing	Forward 7 *	N/A	Suppressed	N/A
	Middle	N/A	Suppressed	N/A
	Rearward	N/A	Suppressed	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 32 = Full Rearward; 32 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C55901	TEST DATE:	1/14/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	First Choice 204
DATE OF MANUFACTURE:	6-20-2000

Base: ☐ On ☐ Off ☒ N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward	N/A	N/A	Won't Fit
	Middle	128	Suppressed	N/A
	Rearward	129	N/A	Suppressed
Unbelted Rear Facing	Forward	N/A	N/A	Won't Fit
	Middle	N/A	Suppressed	N/A
	Rearward	N/A	N/A	Suppressed
Unbelted Forward Facing	Forward 5 *	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 32 = Full Rearward; 32 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R) Section B Rear Facing CRS

NHTSA No.:	C55901	TEST DATE:	1/17/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: ☒ On ☐ Off ☐ N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward	N/A	N/A	Won't Fit
	Middle	129	N/A	Suppressed
	Rearward	127	Suppressed	N/A
Unbelted Rear Facing	Forward	N/A	N/A	Won't Fit
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	Suppressed	N/A
Unbelted Forward Facing	Forward 8 *	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 32 = Full Rearward; 32 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA No.:	C55901	TEST DATE:	1/17/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: ☐ On ☒ Off ☐ N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Handle Down	Handle Up
Belted Rear Facing	Forward	N/A	N/A	Won't Fit
	Middle	130	N/A	Suppressed
	Rearward	131	Suppressed	N/A
Unbelted Rear Facing	Forward	N/A	N/A	Won't Fit
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	Suppressed	N/A
Unbelted Forward Facing	Forward	N/A	N/A	Suppressed
	Middle	N/A	N/A	Suppressed
	Rearward	N/A	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C55901	TEST DATE:	1/14/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: __On __Off X N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	130	Suppressed
	Middle	131	Suppressed
	Rearward	131	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	128	Suppressed
	Middle	127	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward 3 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN516)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 32 = Full Rearward; 32 total Seat Slide detents)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C55901	TEST DATE:	1/14/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Base: __On __Off X N/A-Constraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	128	Suppressed
	Middle	131	Suppressed
	Rearward	131	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	127	Suppressed
	Middle	131	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 15 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA No.:	C55901	TEST DATE:	1/14/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	082

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Base: __On __Off X N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
 Tested seat back angle: 19.0° On Seat Back Frame
 Manufacturer's specified anchorage position: Fixed
 Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing	Forward	127	Suppressed
	Middle	130	Suppressed
	Rearward	132	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	130	Suppressed
	Middle	130	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	No Light *
	Middle	N/A	No Light *
	Rearward	N/A	No Light *

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

* The Volvo S40 passenger air bag suppression telltale light is off when the passenger seat is empty. In several unbelted positions the suppression system classified the Evenflo Medallion 254 as an empty seat; therefore the telltale light was off. A diagnostic tool supplied by Volvo was used to verify that the air bag was suppressed in these cases.

DATA SHEET 16 SUMMARY

Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K) Section A Car Bed

NHTSA No.:	C55901	TEST DATE:	1/17/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Cosco
CAR BED MODEL:	Dream Ride 02-719
DATE OF MANUFACTURE:	6-16-2000

Base: __On __Off X N/A-Constraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Handle Down	Handle Up
Belted	Forward	Won't Fit	N/A
	Middle	Suppressed	N/A
	Rearward	Suppressed	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

DATA SHEET 17 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Belt Positioning Booster

NHTSA No.:	C55901	TEST DATE:	1/17/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward	12	Suppressed
	Middle	17	Suppressed
	Rearward	15	Suppressed
Belted Forward Facing Cinched With Harness	Forward	128	Suppressed
	Middle	130	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

DATA SHEET 17 SUMMARY

Suppression Test Using 3 Year Old Dummy And Booster Seats (Part 572, Subpart P)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C55901	TEST DATE:	1/17/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	No Blanket
Belted Forward Facing Without Harness	Forward	N/A	Won't Fit
	Middle	14	Suppressed
	Rearward	17	Suppressed
Belted Forward Facing Cinched With Harness	Forward	N/A	Won't Fit
	Middle	129	Suppressed
	Rearward	128	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C55901	TEST DATE:	1/13/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 5 *	131	Suppressed
	Middle	130	Suppressed
	Rearward	132	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 32 = Full Rearward; 32 total Seat Slide detents)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C55901	TEST DATE:	1/13/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward	N/A	Won't Fit
	Middle	130	Suppressed
	Rearward	132	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 18 SUMMARY

Suppression Test Using 3 Year Old Dummy And Convertible Restraints (Part 572, Subpart P)
Section C Forward Facing Convertible CRS

NHTSA No.:	C55901	TEST DATE:	1/13/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted	Forward 13 *	132	Suppressed
	Middle	129	Suppressed
	Rearward	127	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 32 = Full Rearward; 32 total Seat Slide detents)

DATA SHEET 19 SUMMARY

Suppression Test Using An Unbelted 3 Year Old Dummy (Part 572, Subpart P)
No CRS

NHTSA No.:	C55901	TEST DATE:	1/19/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	3 Year Old	DUMMY SERIAL NO.:	031

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	44.0	Suppressed
	Middle	44.0	Suppressed
	Rearward	44.0	Suppressed
Position 3 Sitting on seat with back not against seat back	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 4 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 5 Standing on seat, facing forward	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 6 Kneeling on seat, facing forward	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 7 Kneeling on seat, facing rearward	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 8 Lying on seat. (Three designated seating positions only)	Forward	N/A	N/A
	Middle	N/A	N/A
	Rearward	N/A	N/A

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 20 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C55901	TEST DATE:	1/18/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	153

BOOSTER SEAT NAME:	Century
BOOSTER SEAT MODEL:	Next Step 4920
DATE OF MANUFACTURE:	8-16-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Belt Load (N)	Result
Belted	Forward	15	Failed *
	Middle	12	Failed *
	Rearward	16	Failed *

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Rearward position. (SN506)

* The three sequence Volvo S-40 test plan was performed and the installation was properly classified. See Page 6, Discussion of Tests, for further details.

DATA SHEET 20 SUMMARY

Suppression Test Using 6 Year Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C55901	TEST DATE:	1/18/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	153

BOOSTER SEAT NAME:	Cosco
BOOSTER SEAT MODEL:	High Back Booster 02-442
DATE OF MANUFACTURE:	4-28-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame

Tested seat back angle: 19.0° On Seat Back Frame

Manufacturer's specified anchorage position: Fixed

Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Belt Load (N)	Result
Belted	Forward	11	Suppressed
	Middle	12	Suppressed
	Rearward	15	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 20 SUMMARY

Suppression Test Using 6-Year-Old Dummy And Booster Seats (Part 572, Subpart N)
Section D Forward Facing Toddler Belt Positioning Booster Seat

NHTSA No.:	C55901	TEST DATE:	1/18/05
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	153

BOOSTER SEAT NAME:	Evenflo
BOOSTER SEAT MODEL:	Right Fit 245
DATE OF MANUFACTURE:	6-26-2000

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
Tested seat back angle: 19.0° On Seat Back Frame
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

Test Summary

Seat Belt	Seat Slide	Belt Load (N)	Result
Belted	Forward	11	Suppressed
	Middle	15	Suppressed
	Rearward	18	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Forward position. (SN506)

DATA SHEET 21 SUMMARY

Suppression Test Using An Unbelted 6-Year-Old Dummy (Part 572, Subpart N)
No CRS

NHTSA No.:	C55901	TEST DATE:	1/18/05
LABORATORY:	MGA	TECHNICIANS:	JL/AJH
DUMMY TYPE:	6 Year Old	DUMMY SERIAL NO.:	153

Test Summary

Position	Seat Slide	Seat Back Angle	Result
Position 1 Sitting on seat with back against seat back	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 2 Sitting on seat with back against reclined seat back	Forward	44.0	Suppressed
	Middle	44.0	Suppressed
	Rearward	44.0	Suppressed
Position 3 Sitting on seat edge, spine vertical, hands at dummy's sides	Forward	19.0	Suppressed
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed
Position 4 Sitting on seat with back against seat back then leaning on the door	Forward	19.0	Won't Fit
	Middle	19.0	Suppressed
	Rearward	19.0	Suppressed

Successful Unbelted 5th percentile Female Dummy Reactivation was performed with the seat in the Middle position. (SN506)

DATA SHEET 27 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 1 - Chin On Module (S26.2)

NHTSA No.:	C55901	TEST DATE:	6-20-05
LABORATORY:	MGA	TECHNICIANS:	BR/AH
DUMMY TYPE:	5 th Percentile Female	DUMMY SERIAL NO.:	507

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
 Tested seat back angle: 19.0° On Seat Back Frame
 Tested seat position: Full Aft

Tested steering wheel angle: 24.6°
 Thorax cavity angle: 30.6°
 Bottom of chin height: 3 mm Above Module

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	150.0	150.4

5th Percentile Female SN 507 Position 1 (Chin On Module) 6-20-05

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	13
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	68.0
Peak Nij (Ntf)	1.0	0.3
Time (ms)	NA	12.5
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	184.6
Peak Nij (Ncf)	1.0	0.2
Time (ms)	NA	213.6
Neck Tension	2070 N	664
Neck Compression	2520 N	209
Chest g	60 g	14
Chest Displacement	52 mm	6
Left Femur	6805 N	144
Right Femur	6805 N	95

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment
 designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
 Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

DATA SHEET 28 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 2 - Chin On Rim (S26.3)

NHTSA No.:	C55901	TEST DATE:	6-20-05
LABORATORY:	MGA	TECHNICIANS:	BR/AH
DUMMY TYPE:	5 th Percentile Female	DUMMY SERIAL NO.:	510

Manufacturer's design seat back angle: 19.0° On Seat Back Frame
 Tested seat back angle: 19.0° On Seat Back Frame
 Tested seat position: Full Aft

Tested steering wheel angle: 23.9°*
 Thorax cavity angle: 29.9°
 Chin Point height: 5 mm Below Steering Wheel Target

Note:

The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel

*The dummy contacted the windshield with the steering wheel at mid position. The steering controls were adjusted to lower the upper steering wheel rim the necessary amount to bring the Chin Point coincident with the upper steering wheel rim. The rear thorax cavity was adjusted along with the steering wheel angle.

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	150.0	150.3

5th Percentile Female SN 510 Position 2 (Chin On Rim) 6-20-05

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	9
Peak Nij (Nte)	1.0	0.3
Time (ms)	NA	16.9
Peak Nij (Ntf)	1.0	0.3
Time (ms)	NA	63.4
Peak Nij (Nce)	1.0	0.1
Time (ms)	NA	166.4
Peak Nij (Ncf)	1.0	0.2
Time (ms)	NA	71.1
Neck Tension	2070 N	569
Neck Compression	2520 N	131
Chest g	60 g	18
Chest Displacement	52 mm	16
Left Femur	6805 N	282
Right Femur	6805 N	423

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
 Second stage fire time of 150 ms; Injuries calculated on 0 ms to 275 ms

DATA SHEET 30 VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	☒ 32 to 40 kmph	☐ 0 to 48 kmph	☐ 0 to 56 kmph
DRIVER DUMMY:	☒ 5 TH female		☐ 50 th Male
PASSENGER DUMMY:	☒ 5 TH female		☐ 50 th Male

- | | | |
|-------------------------------------|-----|---|
| ☒ | 1. | Fill the transmission with transmission fluid to the satisfactory range. |
| ☒ | 2. | Drain fuel from vehicle |
| ☒ | 3. | Run the engine until fuel remaining in the fuel delivery system is used and the engine stops. |
| ☒ | 4. | Record the useable fuel tank capacity supplied by the COTR |
| ☒ | | Useable Fuel Tank Capacity supplied by COTR: 62 liters (16.4 gallons) |
| ☒ | 5. | Record the fuel tank capacity supplied in the owner's manual. |
| ☒ | | Useable Fuel Tank Capacity in owner's manual: 62 liters (16.4 gallons) |
| ☒ | 6. | Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank. |
| ☒ | | Amount Added: 62 liters (16.4 gallons) |
| ☒ | 7. | Fill the coolant system to capacity. |
| ☒ | 8. | Fill the engine with motor oil to the Max. mark on the dip stick. |
| ☒ | 9. | Fill the brake reservoir with brake fluid to its normal level. |
| ☒ | 10. | Fill the windshield washer reservoir to capacity. |
| ☒ | 11. | Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual. |

Tire placard pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi
Owner's manual pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi
Actual inflated pressure:	RF:	36 psi	LF:	36 psi	RR:	36 psi	LR:	36 psi

- | | | |
|-------------------------------------|-----|--|
| ☒ | 12. | Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight). |
|-------------------------------------|-----|--|

Right Front (kg):	411.4	Right Rear (kg):	307.5
Left Front (kg):	438.7	Left Rear (kg):	284.0
Total Front (kg):	850.1	Total Rear (kg):	591.5
% Total Weight:	59.0	% Total Weight:	41.0
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):		1441.6	

- | | | |
|-------------------------------------|------|---|
| ☒ | 13. | UVW Test Vehicle Attitude: (All dimensions in millimeters) |
| ☒ | 13.1 | Mark a point on the vehicle above the center of each wheel. |
| ☒ | 13.2 | Place the vehicle on a level surface. |

- ☒ 13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

RF:	677	LF:	671	RR:	688	LR:	686
-----	-----	-----	-----	-----	-----	-----	-----

- ☒ 14. Calculate the Rated Cargo and Luggage Weight (RCLW): 25.0 kg

- ☒ 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

- ☒ Yes, go to 14.3

- ☐ No, go to 14.2

- ☐ 14.2 VCW = Gross Vehicle Weight – UVW

$$VCW = \underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

- ☒ 14.3 VCW = 365 kg (800 lbs)

- ☒ 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

- ☒ Yes, go to 14.6

- ☐ No, go to 14.5 and skip 14.6

- ☐ 14.5 DSC = Total number of seat belt assemblies =

- ☒ 14.6 DSC = 5

- ☒ 14.7 RCLW = VCW – (68 kg x DSC) = 365 kg - (68 kg x 5) = 25 kg

- ☒ 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

- ☐ Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)

- ☒ No, use the RCLW calculated in 14.7

- ☒ 15. Fully Loaded Weight (100% fuel fill): 1563.1 kg

- ☒ 15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: ☒ 5th female ☐ 50th male
 Passenger: ☒ 5th female ☐ 50th male

- ☒ 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

- ☒ 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

- ☒ 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	438.6	Right Rear (kg):	344.3
Left Front (kg):	461.8	Left Rear (kg):	318.4
Total Front (kg):	900.4	Total Rear (kg):	662.7
% Total Weight:	57.6	% Total Weight:	42.4
% GVW	55.1	% GVW	49.3
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			1563.1

- ☒ 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

- ☒ 16.1 Place the vehicle on a level surface.

- X** 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements
- | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| RF: | 674 | LF: | 675 | RR: | 690 | LR: | 695 |
|-----|-----|-----|-----|-----|-----|-----|-----|
- X** 17. Drain the fuel system
- X** 18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank to 92 - 94 percent of useable capacity.
- X** Fuel tank capacity x .94 = 62 liters (16.4 gallons) x .94 = 58.3 liters (15.4 gallons)
- X** Amount added 57.7 liters (15.25 gallons) 93.1%
- X** 19. Crank the engine to fill the fuel delivery system with Stoddard solvent
- X** 20. Calculate the test weight range.
- X** 20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)
- 1564.6 kg = 1441.6 kg + 25.0 kg + 98.0 kg
- X** 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
 Max. Test Weight = Calculated Test Weight – 4.5 kg = 1560.1kg
 Min. Test Weight = Calculated Test Weight – 9 kg = 1555.6 kg
- X** 21. Remove the RCLW from the cargo area.
- X** 22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.
- X** 23. Vehicle Components Removed For Weight Reduction:
Spare tire, jack, tools, and trunk interior
- X** 24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.
- X** 25. If necessary, add ballast to achieve the actual test weight.
- X** N/A
- X** Weight of Ballast: 23.6 kg in spare tire well
- X** 26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.
- X** 27. Record the vehicle weight at each wheel to determine the actual test weight.

Right Front (kg):	417.3	Right Rear (kg):	353.8
Left Front (kg):	454.5	Left Rear (kg):	330.7
Total Front (kg):	871.8	Total Rear (kg):	684.5
% Total Weight:	56.0	% Total Weight:	44.0
% GVW	55.1	% GVW	49.3
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			1556.3

- ☒ 28. Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?
☒ Yes
☐ No, explain why not.
- ☒ 29. Test Weight Vehicle Attitude: (all dimensions in millimeters)
☒ 29.1 Place the vehicle on a level surface
☒ 29.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements

RF:	675	LF:	674	RR:	690	LR:	687
-----	-----	-----	-----	-----	-----	-----	-----

- ☒ 30. Summary of test attitude
☒ 30.1 AS DELIVERED:

RF:	677	LF:	671	RR:	688	LR:	686
-----	-----	-----	-----	-----	-----	-----	-----

AS TESTED:

RF:	675	LF:	674	RR:	690	LR:	687
-----	-----	-----	-----	-----	-----	-----	-----

FULLY LOADED:

RF:	674	LF:	675	RR:	690	LR:	695
-----	-----	-----	-----	-----	-----	-----	-----

- ☒ 30.2 Is the "as tested" test attitude equal to or between the "fully loaded" and "as delivered" attitude?
☒ Yes
☐ No, explain why not.

REMARKS:

I certify that I have read and performed each instruction.

Signature:

Trick Kosinski

Date:

7/21/05

DATA SHEET 31

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	X 32 to 40 kmph	0 to 48 kmph	0 to 56 kmph
DRIVER DUMMY:	X 5 TH female		50 th Male
PASSENGER DUMMY:	X 5 TH female		50 th Male

- X

 1. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
- X

 2. Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
- X

 3. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 4. Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 5. Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart.
- X

 6. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
- X

 7. Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart.
- X

 8. Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart.

REMARKS:

I certify that I have read and performed each instruction.

Signature: _____

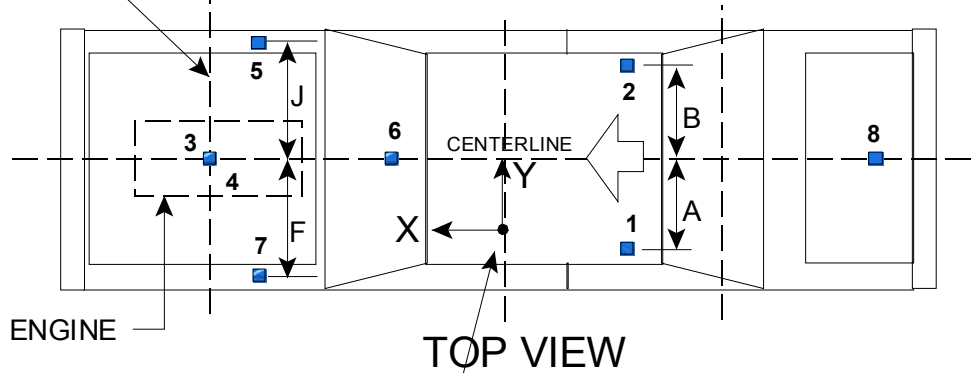
Nick Kosinski

Date: _____

7/21/05

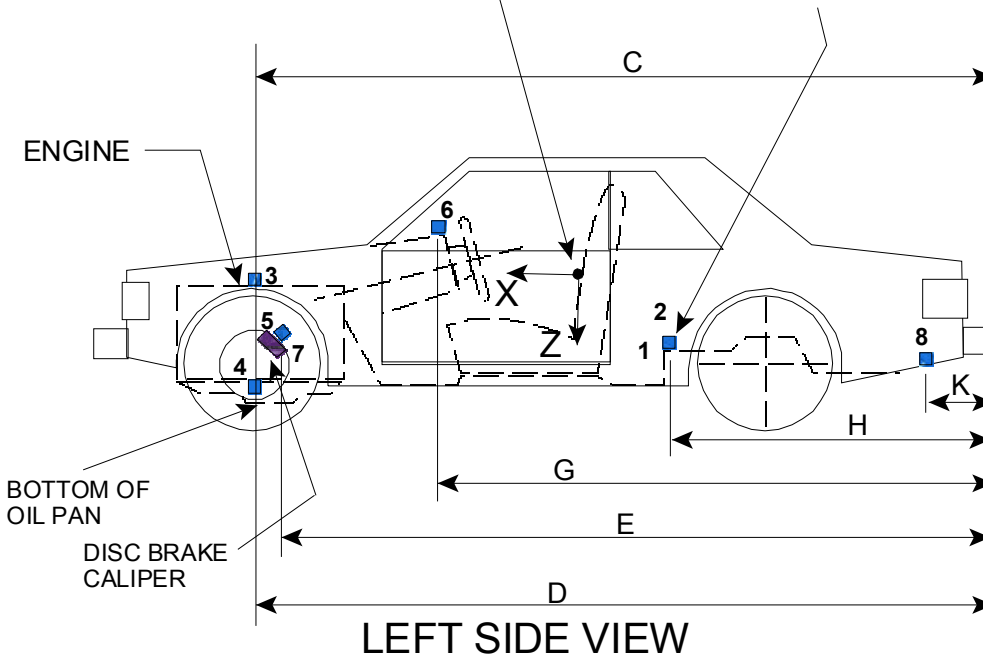
VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

CENTERLINE OF
FRONT WHEELS



ACCELEROMETER
COORDINATE SYSTEM
(POSITIVE DIRECTION SHOWN)

REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



Dimensions Corresponding To The Letters "A" Through "K" (Excluding "I") Are Recorded In The Table On The Following Page.
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

DATA SHEET 31
VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

<u>DIMENSION</u>	<u>LENGTH (mm)</u>			
<u>PRETEST VALUES</u>				
<u>A</u> (LH Rear Seat Xmbr)	312			
<u>B</u> (RH Rear Seat Xmbr)	308			
<u>C</u> (Engine Top)	3676			
<u>D</u> (Engine Bottom)	3838			
<u>E</u> (Caliper)	Right Side	3655	Left Side	3658
<u>F</u> (Left Caliper)	695			
<u>G</u> (IP)	2977			
<u>H</u> (Seat)	1739			
<u>J</u> (Right Caliper)	695			
<u>K</u> (Trunk)	1124			
<u>POST TEST VALUES</u>				
<u>A</u> (LH Rear Seat Xmbr)	312			
<u>B</u> (RH Rear Seat Xmbr)	309			
<u>C</u> (Engine Top)	3659			
<u>D</u> (Engine Bottom)	3789			
<u>E</u> (Caliper)	Right Side	3651	Left Side	3652
<u>F</u> (Left Caliper)	696			
<u>G</u> (IP)	2975			
<u>H</u> (Seat)	1739			
<u>J</u> (Right Caliper)	697			
<u>K</u> (Trunk)	1124			

DATA SHEET 32

PHOTOGRAPHIC TARGETS

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u> </u> 0 to 48 kmph	<u> </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 TH female	<u> </u> 50 th Male	
PASSENGER DUMMY:	<u>X</u> 5 TH female	<u> </u> 50 th Male	

- | | | |
|-------------------------------------|------|--|
| ☒ | 1. | FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B) |
| ☒ | 1.1 | Targets A1 and A2 are on flat rectangular panels. |
| ☒ | 1.2 | Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it. |
| ☒ | | Distance between targets (mm): 100 mm |
| ☒ | 1.3 | Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it. |
| ☒ | | Distance between targets (mm): 100 mm |
| ☒ | 1.4 | The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm. |
| ☒ | | Distance between the first and last circular targets (mm): 915 mm |
| ☒ | 1.5 | Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. |
| ☒ | 1.6 | Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy. |
| ☒ | 1.7 | Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart. |
| ☒ | | Distance between targets (mm): 615 mm |
| ☒ | 1.8 | Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart. |
| ☒ | | Distance between targets (mm): 615 mm |
| ☒ | 1.9 | Place tape with squares having alternating colors on the top portion of the steering wheel. |
| ☒ | 1.10 | Chalk the bottom portion of the steering wheel |
| ☒ | 1.11 | Is this an offset test? |
| | | ☐ Yes, continue with this section |
| | | ☒ No, go to 2. |
| | 1.12 | Measure the width of the vehicle. |
| | | Vehicle width (mm): |

☐	1.13	Find the centerline of the vehicle. ($\frac{1}{2}$ of the vehicle width)
☐	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
☐	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D)
☒	2.	Barrier Targeting
☒	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
☒	2.2	Targets D1 and D2 are on a rectangular panel.
☒	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
☒		Distance between circular targets on D1 (mm): 100 mm
☒		Distance between circular targets on D2 (mm): 100 mm
☒	3.	FMVSS 208 Dummy Targeting Requirements
☒	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
☒	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
☒	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
☒	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
☒	4.	FMVSS 204 Targeting Requirements
☒	4.1	Is an FMVSS 204 indicant test ordered on the "COTR Vehicle Work Order?"
☐		Yes, continue with this form.
☒		No, this form is complete.
☐	4.2	Resection panel (Figure 28C)
☐	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically
☐	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
☐	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
☐	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.

-  4.2.5 The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.
-  4.3 Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
-  4.4 Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash

I certify that I have read and performed each instruction.

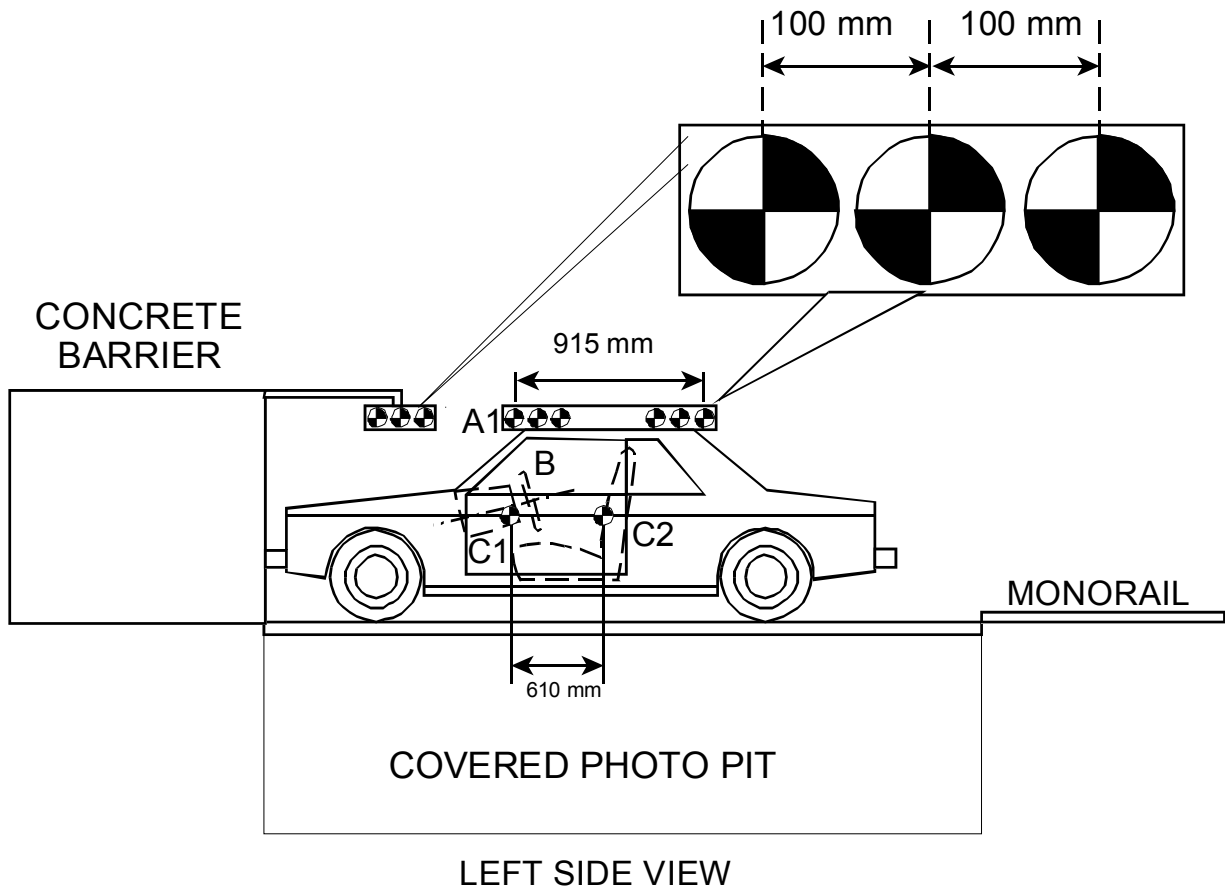
Signature:

Nick Kosinski

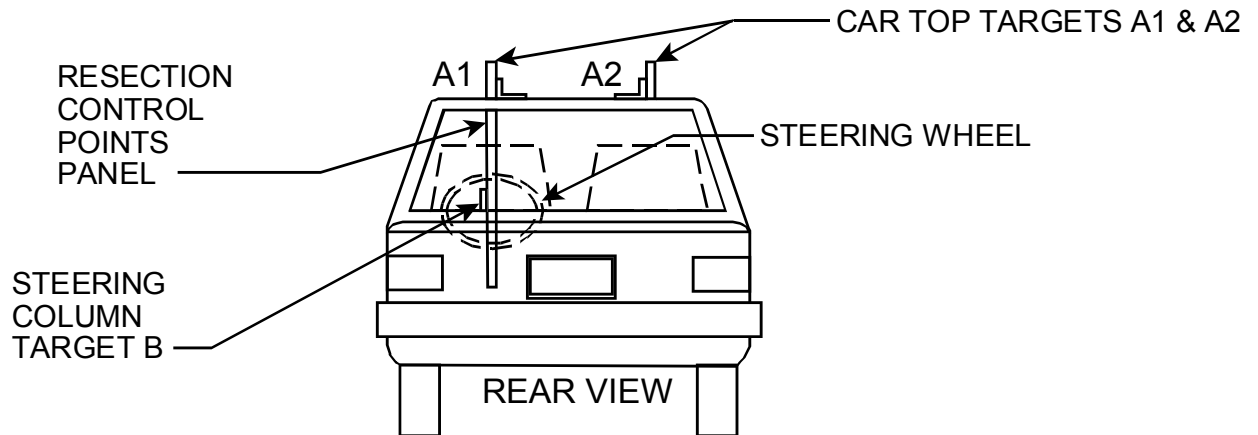
Date:

7/21/05

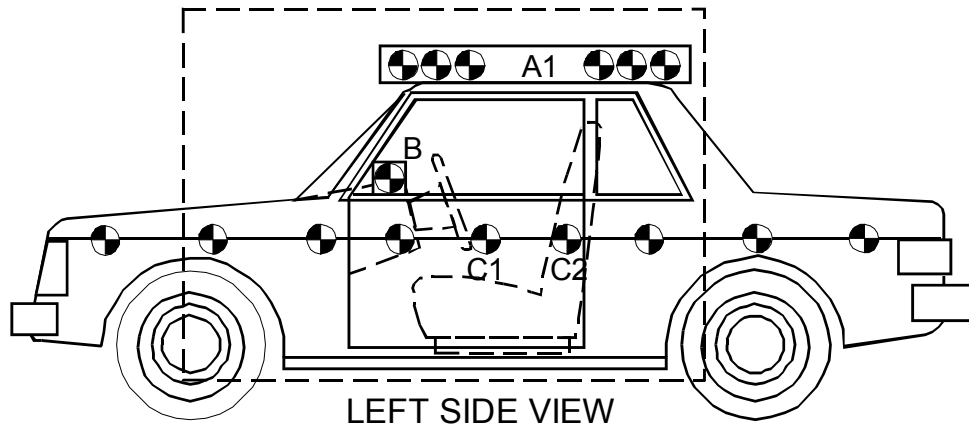
REFERENCE PHOTO TARGETS



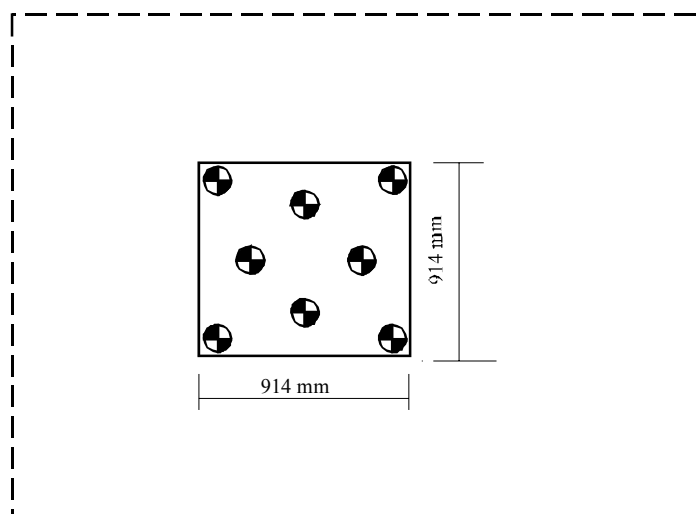
RESECTION PANEL TARGETING ALIGNMENT



TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION



PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

DATA SHEET 33
CAMERA LOCATIONS

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance

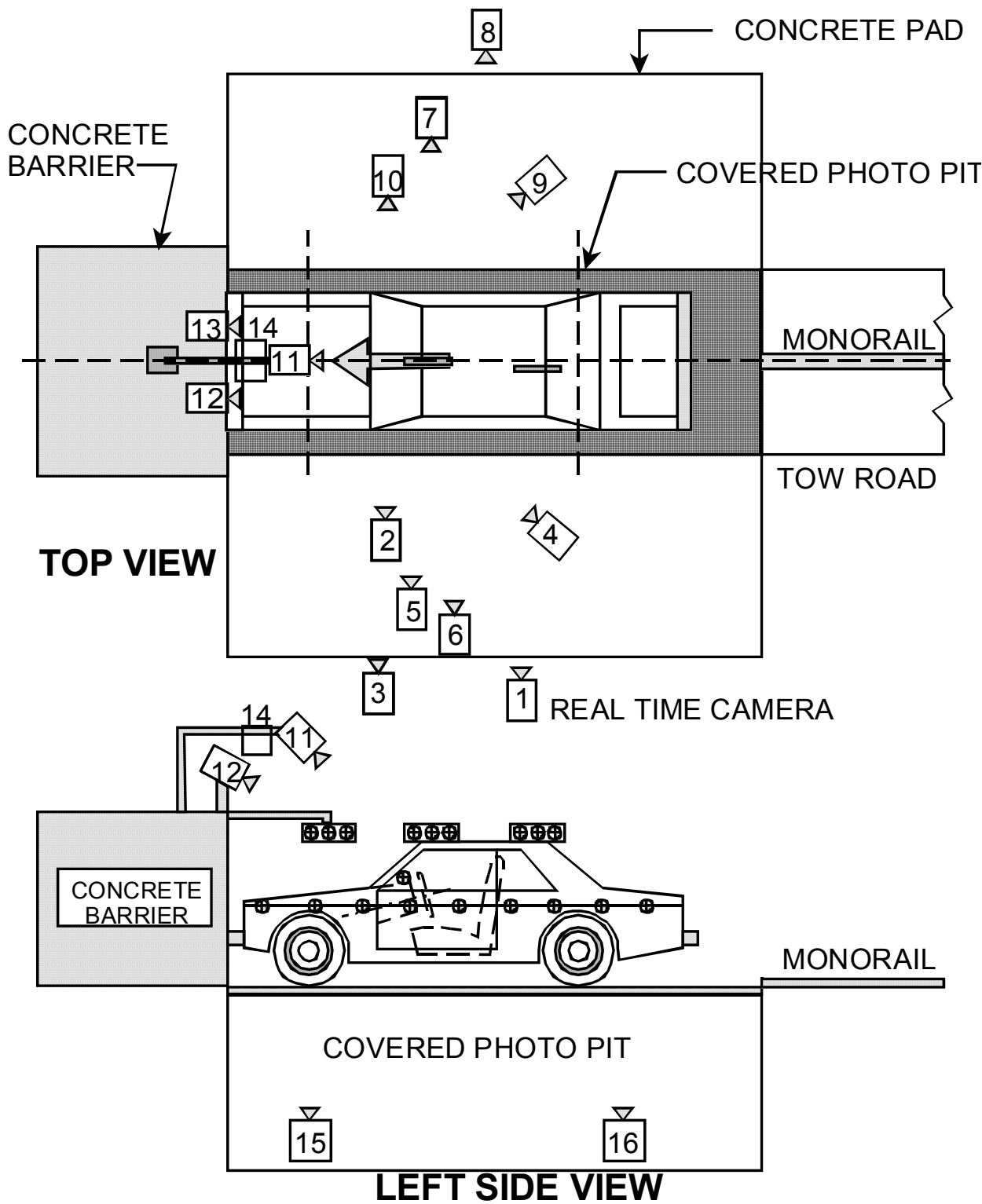
NHTSA No.: C55901
Test Date: 7/21/05
Time: 11:10 am

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	24
2	Left Side View (Barrier face to front seat backs)	1055	-5160	1245	19	1000
3	Left Side View (Driver)	1545	-7280	1490	35	1000
4	Left Side View (B-post aimed toward center of steering wheel)	6335	-5010	2135	50	1000
5	Left Side View (Steering Column)	2015	-5940	1560	24	1000
6	Left Side View (Steering Column)	1990	-5925	1030	24	1000
7	Right Side View (Overall)	2140	7540	1450	24	1000
8	Right Side View (Passenger)	995	5140	1155	24	1000
9	Right Side View (Angle)	6640	4455	2260	50	1000
10	Right Side View (Front door)	1435	7010	1520	35	1000
11	Front View Windshield	-455	0	2720	12.5	1000
12	Front View Driver	-40	-450	2075	12.5	1000
13	Front View Passenger	-10	605	2120	12.5	1000
14	Overhead Barrier Impact View	490	0	5050	14	1000
15	Pit Camera Engine View	910	0	-3150	24	1000
16	Pit Camera Fuel Tank View	3005	0	-3150	24	1000

***COORDINATES:**

+X - forward of impact plane
+Y - right of monorail centerline
+Z - above ground level

CAMERA POSITIONS FOR FMVSS 208



DATA SHEET 34

APPENDIX G DUMMY POSITIONING PROCEDURES FOR 5th% DRIVER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C55901
Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	☒ 32 to 40 kmph	☐ 0 to 48 kmph	☐ 0 to 56 kmph
DRIVER DUMMY:	☒ 5 TH female	☐ 50 th Male	
PASSENGER DUMMY:	☒ 5 TH female	☐ 50 th Male	

- ☒ 1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
☐ N/A – No lumbar adjustment
- ☒ 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
☒ N/A – No additional support adjustment
- ☒ 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
☒ N/A – No independent fore-aft seat cushion adjustment
- ☒ 4. Use the seat markings determined during the completion of Data Sheet 14 to set the rearmost fore-aft position, mid-height position and the seat cushion mid-angle. (S16.3.2.1.1)
- ☒ 5. If the vehicle has an adjustable accelerator pedal, place it in the full forward position. (S16.3.2.2.1)
☒ N/A accelerator pedal not adjustable
- ☒ 6. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions as determined in data sheet 14. (S16.2.9)
- ☒ 7. Fully recline the seat back. (S16.3.2.1.2)
☐ N/A seat back not adjustable.
- ☒ 8. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.2.1.2)
- ☒ 9. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 1.18 of Data Sheet 14 (S16.3.2.1.3 and S16.3.2.1.4)
- ☒ 10. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.2.1.5)
- ☒ 11. Set the angle between the legs and the thighs to 120 degrees. (S16.3.2.1.6)

- ☒ 12. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking as determined in item 1.18 of Data Sheet 14. (S16.3.2.1.6)
Record Knee Separation 170 mm
- ☒ 13. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.2.1.6)
☐ Pelvis contacted seat back.
☒ Calves contacted seat cushion.
- ☒ 14. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side to side three time. (S16.3.2.1.7)
- ☒ 15. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.2.1.8)
- ☒ 16. Position the right foot until the foot is in line with a longitudinal vertical plane passing through the center of the accelerator pedal. Maintain the leg and thigh in a vertical plane. (S16.3.2.1.8)
- ☒ 17. Rotate the left leg and thigh laterally to equalize the distance between each knee and the longitudinal seat cushion marking as determined in item 1.18 of Data Sheet 14. (S16.3.2.1.8)
- ☒ 18. Attempt to return the seat to the foremost fore-aft position, mid-height, and seat cushion mid-angle. The foot may contact and depress the accelerator and/or change the angle of the foot with respect to the leg. (S16.3.2.1.8)
☒ Foremost position achieved. Proceed to step 23.
☐ Foremost not achieved because of foot interference. Proceed to step 20.
☐ Foremost not achieved because of steering wheel contact.
- ☐ 19. If the dummy's legs contact the steering wheel, move the steering wheel up the minimum amount required to avoid contact. If the steering wheel is not adjustable separate the knees the minimum required to avoid contact. (S16.3.2.1.8)
☐ N/A- there was no leg contact
☐ Steering wheel repositioned
☐ Knees separated
- ☐ 20. If the left foot interferes with the clutch or brake pedals, rotate the left foot about the leg to provide clearance. If this is not sufficient, rotate the thigh outboard at the hip the minimum amount required for clearance. (S16.3.2.1.8)
☐ N/A, No foot interference with pedals.
☐ Foot adjusted to provide clearance.
☐ Foot and Thigh adjusted to provide clearance.

- ☐ 21. Continue to move the seat. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)
☐ Foremost, mid-height position and the seat cushion mid-angle reached

☐ Dummy contact. Clearance set at maximum of 5mm
Measured Clearance _____

☐ Dummy Contact. Seat set at nearest detent position.
Seat position ☐ detent positions rearward of foremost
(Foremost is position zero)
- ☐ 22. If the steering wheel was repositioned in step 19, return the steering wheel to the original position. If the steering wheel contacts the dummy before reaching the original position, position the wheel until a maximum clearance of 5mm (.2 inches) is achieved, or the steering wheel is in the closest detent position that does not cause dummy contact. (S16.3.2.1.8)
☐ N/A Steering wheel was not repositioned.

☐ Original position achieved.

☐ Dummy contact. Clearance set at maximum of 5mm
Measured Clearance _____

☐ Dummy Contact. Steering wheel set at nearest detent position.
Steering wheel position ☐ detent positions upward of original position.
(Original position is position zero)
- ☒ 23. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If the head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.2.1.9)

☒ Head Level Achieved. (Check all that apply)
☒ Head leveled using the adjustable seat back
☐ Head leveled using the neck bracket.
Head Angle 0.2 degrees

☐ Head Level NOT Achieved. (Check all that apply)
☐ Head adjusted using the adjustable seat back
☐ Head adjusted using the neck bracket.
Head Angle _____ degrees
- ☒ 24. Verify the pelvis is not interfering with the seat bight. (S16.3.2.1.9)
☒ No interference
☐ Pelvis moved forward the minimum amount so that it is not caught in the seat bight.

- ☒ 25. Verify the dummy abdomen is properly installed. (S16.3.2.1.9)
☒ Abdomen still seated properly into dummy
☐ Abdomen was adjusted because it was not seated properly into dummy
- ☒ 26. Head Angle
☒ N/A, neither the pelvis nor the abdomen were adjusted.
- ☒ 26.1 Head still level (Go to 27)
- ☐ 26.2 Head level adjusted
- ☐ Head Level Achieved. (Check all that apply)
☐ Head leveled using the adjustable seat back
☐ Head leveled using the neck bracket.
Head Angle _____ degrees
- ☐ Head Level NOT Achieved. (Check all that apply)
☐ Head level adjusted using the adjustable seat back
☐ Head level adjusted using the neck bracket.
Head Angle _____ degrees
- ☒ 27. If the dummy torso contacts the steering wheel while performing step 23, reposition the steering wheel in the following order to eliminate contact.
☒ N/A, No dummy torso contact with the steering wheel.
- ☒ 27.1 Adjust telescoping mechanism.
☒ N/A No telescoping adjustment.
☐ Adjustment performed (fill in appropriate change)
Steering wheel moved _____ detent positions in the forward direction.
Steering wheel moved _____ mm in the forward direction.
- ☒ 27.2 Adjust tilt mechanism.
☐ N/A No tilt adjustment.
☒ No adjustment performed.
☐ Adjustment performed.
Steering wheel moved _____ detent positions Upward/Downward.
(circle one)
Steering wheel moved _____ degrees Upward/Downward
- ☒ 27.3 Adjust Seat in the aft direction.
☒ No Adjustment performed.
☐ Seat moved aft _____ mm from original position.
☐ Seat moved aft _____ detent positions from the original position.
- ☒ 28. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees $\pm$ 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level, adjust the pelvis as closely as possible to the angle range, but keep the head level.
☐ Pelvic angle set to 20.0 degrees $\pm$ 2.5 degrees.
☒ Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.
☒ Record the pelvic angle. 27.2 degrees

- ☒ 29. Check the dummy for contact with the interior after completing adjustments.
 ☒ No contact.
 ___ Dummy in contact with interior.
 ___ Seat moved aft ___ mm from the previous position.
 ___ Seat moved aft ___ detent positions from the previous position.
- ☒ 30. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward.
 ☒ N/A, Seat already at foremost position.
 ___ Clearance unchanged. No adjustments required.
 ___ Additional clearance available
 ___ Seat moved Forward ___ mm from the previous position.
 ___ Seat moved Forward ___ detent positions from the previous position.
- ☒ 31. Driver's foot positioning, right foot. Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 32 otherwise, proceed to step 33.
- ☒ 32. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 32.6 shall be completed in all cases.
- ☒ 32.1 With the rear of the heel contacting the floor pan, move the foot forward until pedal contact occurs or the foot is at the full forward position.
- ___ 32.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. Not Applicable
- ___ 32.3 Extend the leg, allowing the heel to lose contact with the floor until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
- ___ 32.4 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
- ___ 32.5 Align the centerline of the foot with the vertical-longitudinal plane passing through the center of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
- ☒ 32.6 Record foot position
 ☒ Pedal Contact achieved. Contact occurred at step 32.1 .
 ☒ Heel contacts floor pan
 ___ Heel set _____ mm from floor pan.

 ___ Pedal Contact not achieved. Heel set _____ mm from the floor pan.

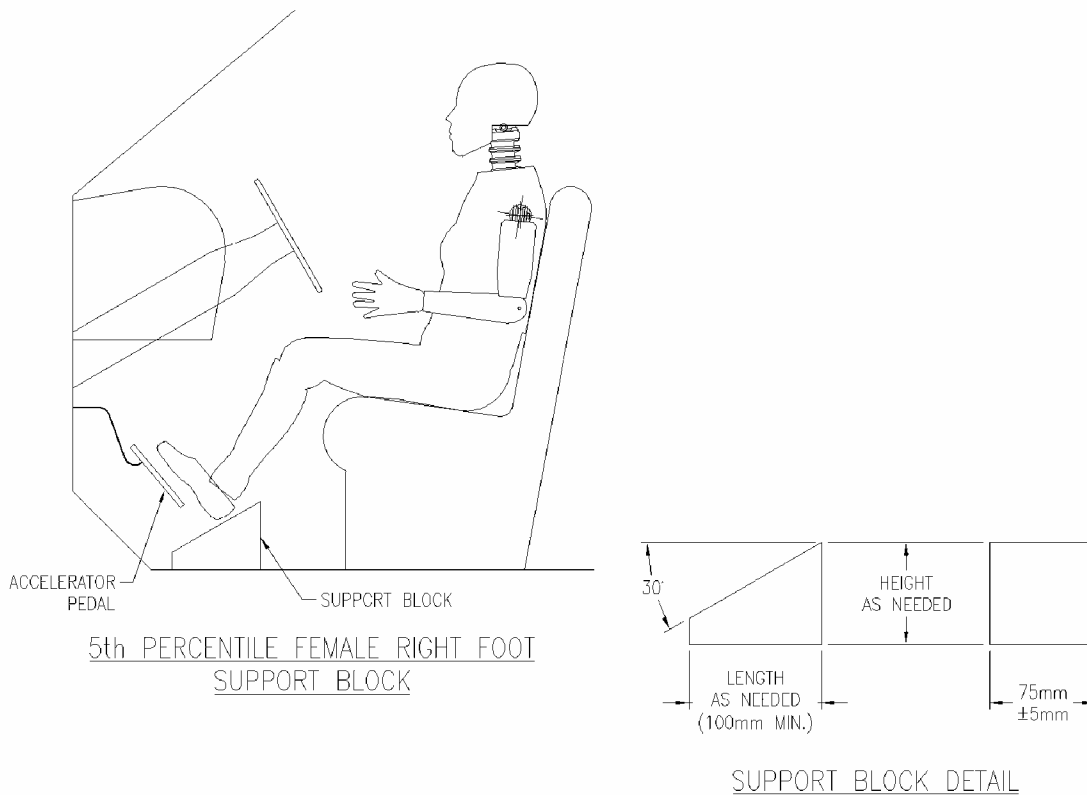


FIGURE G1

- ___33. Perform the following steps until either all steps are completed, or the foot contacts the accelerator pedal. Step 33.5 shall be completed in all cases.
 - ___33.1 Extend the leg until the foot contacts the pedal. Do not raise the toe of the foot higher than the top of the accelerator pedal. If the foot does not contact the pedal, proceed to the next step. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
 - ___33.2 If the vehicle has an adjustable accelerator pedal, move the pedals rearward until pedal contact occurs or the pedals reach the full rearward position. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
 - ___33.3 Angle the foot to achieve contact between the foot and the pedal. If the foot does not contact the pedal, return the foot to the perpendicular orientation. If pedal contact does occur, place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.
 - ___33.4 Align the centerline of the foot in the same horizontal plane as the centerline of the accelerator pedal. Place a tapered foam block as shown in Figure G1 under the heel with the shallow part of the taper facing forward.

33.5 Record foot position

 Pedal Contact achieved. Contact occurred at step 32.1.

 Heel set mm from floor pan.

 Pedal Contact not achieved. Heel set mm from the floor pan.

X 34. Driver's foot positioning, left foot.

X 34.1 Place the foot perpendicular to the leg and determine if the heel contacts the floor pan at any leg position. If the heel contacts the floor pan proceed to step 34.2, otherwise position the leg as perpendicular to the thigh as possible with the foot parallel to the floor pan.

X 34.2 Place the foot on the toe board with the heel resting on the floor pan as close to the intersection of the floor pan and the toe board as possible. Adjust the angle of the foot if necessary to contact the toe board. If the foot will not contact the toe board, set the foot perpendicular to the leg, and set the heel on the floor pan as far forward as possible. Do not place the foot on the wheel well projection or footrest. If the pedals interfere with the placement of the foot, reposition the foot by rotating the foot about the leg, or rotate the leg outboard about the hip if necessary.

 Foot rotated about the leg

 Foot rotated about the leg, and the leg rotated about the hip.

X No pedal interference

X 34.3 Record foot position.

 Heel does not contact floor pan.

 Foot placed on toe board.

X Foot placed on floor pan.

X 35. Driver arm/hand positioning.

X 35.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)

X 35.2 Place the palms of the dummy in contact with the outer part of the steering wheel rim at its horizontal centerline with the thumbs over the steering wheel rim. (S16.3.2.3.2)

X 35.3 If it is not possible to position the thumbs inside the steering wheel rim at its horizontal centerline, then position them above and as close to the horizontal centerline of the steering wheel rim as possible. (S16.3.2.3.3)

X 35.4 Lightly tape the hands to the steering wheel rim so that if the hand of the test dummy is pushed upward by a force of not less than 9 N (2 lb) and not more than 22 N (5 lb), the tape releases the hand from the steering wheel rim. S16.3.2.3.4

X 36. Adjustable head restraints

X N/A, there is no head restraint adjustment; Go to 37

 36.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 37.

___ 36.2 Adjust each head restraint vertically so that the horizontal plane determined in item 3 of Data Sheet 14 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)

___ 36.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)

___ N/A midpoint position attained in previous step

___ Headrest set at nearest detent below the head CG

___ 36.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)

X 37. Driver and passenger manual belt adjustment (for tests conducted with a belted dummy). (S16.3.5) **Unbelted Test**

___ 37.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female.

This information will be supplied by the COTR.

Manufacturer's specified position _____

Actual Position _____

___ 37.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

___ 37.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

___ 37.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 7/21/05

APPENDIX G
DUMMY POSITIONING PROCEDURES
FOR 5th% PASSENGER TEST DUMMY CONFORMING TO SUBPART O OF PART 572

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Wayne Dahlke

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	☒ 32 to 40 kmph	☐ 0 to 48 kmph	☐ 0 to 56 kmph
DRIVER DUMMY:	☒ 5 TH female	☐ 50 th Male	
PASSENGER DUMMY:	☒ 5 TH female	☐ 50 th Male	

(Check this item ONLY if it applies to this vehicle.)

 The passenger seat adjustments are controlled by the adjustments made to the driver's seat. Therefore, positioning of the passenger dummy is made simultaneously with the driver dummy. Adjustments made to the seat to position the driver will over ride any adjustments that would normally be made to position the passenger. (S16.2.10.3)

- X 1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment position. (S16.2.10.1)
X N/A – No lumbar adjustment
- X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment
- X 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S16.2.10.3.1)
X N/A – No independent fore-aft seat cushion adjustment
- X 4. Use the seat markings determined during the completion of Data Sheet 14 to set the rearmost fore-aft position, mid-height position and the seat cushion mid-angle. (S16.3.3.1.1)
- X 5. Fully recline the seat back. (S16.3.3.1.2)
 N/A seat back not adjustable.
- X 6. Place the dummy in the seat with the legs at an angle of 120 degrees to the thighs. The calves should not be touching the seat cushion. (S16.3.3.1.2)
- X 7. Position the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion marking that was determined in item 2.19 of Data Sheet 14 (S16.3.3.1.3 and S16.3.3.1.4)
- X 8. Hold down the dummy's thighs and push rearward on the upper torso to maximize the pelvic angle. (S16.3.3.1.5)
- X 9. Set the angle between the legs and the thighs to 120 degrees. (S16.3.3.1.6)

- X 10. Set the transverse distance between the centers of the front of the knees at 160 to 170 mm. (6.3 to 6.7 inches) Center the knee separation with respect to the longitudinal seat cushion marking that was determined in item 2.19 of Data Sheet 14. (S16.3.3.1.6)
Record Knee Separation 168 mm
- X 11. Push rearward on the dummy's knees until the pelvis contacts the seat back, or the backs of the calves contact the seat cushion, whichever occurs first. (S16.3.3.1.6)
 ___ Pelvis contacted seat back.
 X Calves contacted seat cushion.
- X 12. Gently rock the upper torso ± 5 degrees (approximately 51 mm (2 inches)) side-to-side three times. (S16.3.3.1.7)
- X 13. If needed, extend the legs until the feet do not contact the floor pan. The thighs should be resting on the seat cushion. (S16.3.3.1.8)
- X 14. Use seat controls to line up the seat markings determined during the completion of Data Sheet 14 to set the foremost fore-aft position, mid-height position and the seat cushion mid-angle. If the dummy contacts the interior move the seat rearward until a maximum clearance of 5 mm (0.2 inches) is achieved or the seat is in the closest detent position that does not cause dummy contact. (S16.3.3.1.8)
 X Foremost, mid-height position and the seat cushion mid-angle reached
 ___ Dummy contact. Clearance set at maximum of 5mm
 Measured Clearance _____
 ___ Dummy Contact. Seat set at nearest detent position.
 Seat position ___ detent positions rearward of foremost
 (Foremost is position zero)
- X 15. If the seat back is adjustable, rotate the seat back forward while holding the thighs in place. Continue rotating the seat back forward until the transverse instrument platform of the dummy head is level ± 0.5 degrees. If head cannot be leveled using the seat back adjustment, or the seat back is not adjustable, use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, adjust the head as closely as possible to the ± 0.5 degree range. (S16.3.3.1.9 and S16.3.3.1.10)
 (Check All That Apply)
 ___ Seat back not adjustable
 ___ Seat back not independent of driver side seat back
 X Head Level Achieved. (Check all that apply)
 X Head leveled using the adjustable seat back
 ___ Head leveled using the neck bracket.
 Head Angle 0.1 degrees
 ___ Head Level NOT Achieved. (Check all that apply)
 ___ Head adjusted using the adjustable seat back
 ___ Head adjusted using the neck bracket.
 Head Angle _____ degrees

- X 16. Verify the pelvis is not interfering with the seat bight. (S16.3.3.1.9)
X No interference
 ___ Pelvis moved forward the minimum amount so that it is not caught in the seat bight.
- X 17. Verify the dummy abdomen is properly installed. (S16.3.3.1.9)
X Abdomen still seated properly into dummy
 ___ Abdomen was adjusted because it was not seated properly into dummy
- X 18. Head Angle
X N/A, neither the pelvis nor the abdomen were adjusted.
- X 18.1 Head still level (Go to 19)
- ___ 18.2 Head level adjusted
- ___ Head Level Achieved. (Check all that apply)
 ___ Head leveled using the adjustable seat back
 ___ Head leveled using the neck bracket.
 Head Angle _____ degrees
- ___ Head Level NOT Achieved. (Check all that apply)
 ___ Head adjusted using the adjustable seat back
 ___ Head adjusted using the neck bracket.
 Head Angle _____ degrees
- X 19. Measure and set the pelvic angle using the pelvic angle gage TE-2504. The pelvic angle should be 20.0 degrees $\pm$ 2.5 degrees. If the pelvic angle cannot be set to the specified range because the head will not be level, adjust the pelvis as closely as possible to the angle range, but keep the head level.
 ___ Pelvic angle set to 20.0 degrees $\pm$ 2.5 degrees.
X Pelvic angle of 20.0 degrees not achieved, the angular difference was minimized.
X Record the pelvic angle. 29.4 degrees
- X 20. Check the dummy for contact with the interior after completing adjustments.
X No contact.
 ___ Dummy in contact with interior.
 ___ Seat moved aft _____ mm from the previous position.
 ___ Seat moved aft _____ detent positions from the previous position.
- X 21. Verify the transverse instrument platform of the dummy head is level $\pm$ 0.5 degrees. Use the lower neck bracket adjustment to level the head. If a level position cannot be achieved, minimize the angle. (S16.3.3.1.9, S16.3.3.1.10, and S16.3.3.1.11)
X Head Level Achieved
 Head Angle 0.1 degrees
 ___ Head Level NOT Achieved.
 Head Angle _____ degrees

- ☒ 22. Check the dummy to see if additional interior clearance is obtained, allowing the seat to be moved forward. (S16.3.3.1.12)
 ☐ N/A Bench Seat
 ☒ N/A Seat already at full forward position.
 ☐ Clearance unchanged. No adjustments required.
 ☐ Additional clearance available
 ☐ Seat moved Forward mm from the previous position.
 ☐ Seat moved Forward detent positions from the previous position.
 ☐ Seat moved Forward, Full Forward position reached.
- ☒ 23. Passenger foot positioning. (Indicate final position achieved) (S16.3.3.2)
- ☐ 23.1 Place feet flat on the toe board; OR
- ☒ 23.2 If the feet cannot be placed flat on the toe board, set the feet perpendicular to the lower leg, and rest the heel as far forward on the floor pan as possible; OR
- ☐ 23.3 If the heels do not touch the floor pan, set the legs to vertical and set the feet parallel to the floor pan.
- ☒ 24. Passenger arm/hand positioning. (S16.3.3.3)
- ☒ 24.1 Place the dummy's upper arms adjacent to the torso with the arm centerlines as close to a vertical longitudinal plane as possible. (S16.3.2.3.1)
- ☒ 24.2 Place the palms of the dummy in contact with the outer part of the thighs (S16.3.3.3.2)
- ☒ 24.3 Place the little fingers in contact with the seat cushion. (S16.3.3.3.3)
- ☒ 25. Adjustable head restraints
- ☒ N/A, there is no head restraint adjustment; Go to 26
- ☐ 25.1 If the head restraint has an automatic adjustment, leave it where the system positions the restraint after the dummy is placed in the seat. (S16.3.4.1) Go to 26.
- ☐ 25.2 Adjust each head restraint vertically so that the horizontal plane determined in item 3 of Data Sheet 14 is aligned with the center of gravity (CG) of the dummy head. (S16.3.4.3)
- ☐ 25.3 If the above position is not attainable, move the vertical center of the head restraint to the closest detent below the center of the head CG. (S16.3.4.3)
 ☐ N/A midpoint position attained in previous step
 ☒ Headrest set at nearest detent below the head CG
- ☐ 25.4 If the head restraint has a fore and aft adjustment, place the restraint in the foremost position or until contact with the head is made, whichever occurs first. (S16.3.4.4)
- ☒ 26. Manual belt adjustment (for tests conducted with a belted dummy) S16.3.5
 ☒ N/A, **Unbelted test**

__26.1 If an adjustable seat belt D-ring anchorage exists, place it in the manufacturer's design position for a 5th percentile adult female.

This information will be supplied by the COTR.

Manufacturer's specified position _____

Actual Position _____

__26.2 Place the Type 2 manual belt around the test dummy and fasten the latch. (S16.3.5.2)

__26.3 Ensure that the dummy's head remains as level as possible. (S16.3.5.3)

__26.4 Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this operation four times. Apply a 9 N (2 lbf) to 18 N (4 lbf) tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor. (S16.3.5.4)

REMARKS:

I certify that I have read and performed each instruction.

Signature: Wayne J. Ahl

Date: 7/21/05

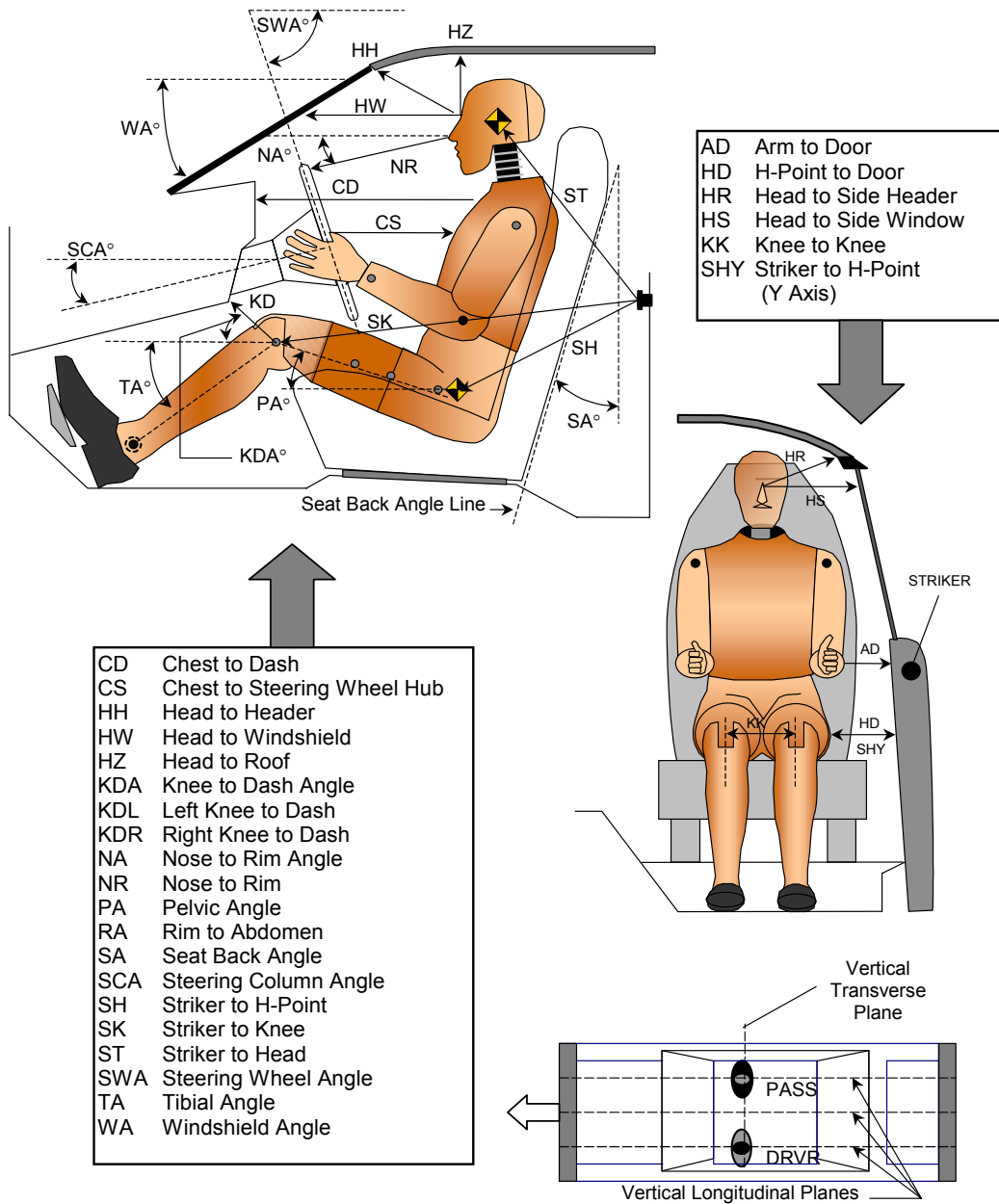
DATA SHEET 35

DUMMY MEASUREMENTS

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C55901
 Test Date: 7/21/05

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET 35
DUMMY MEASUREMENTS

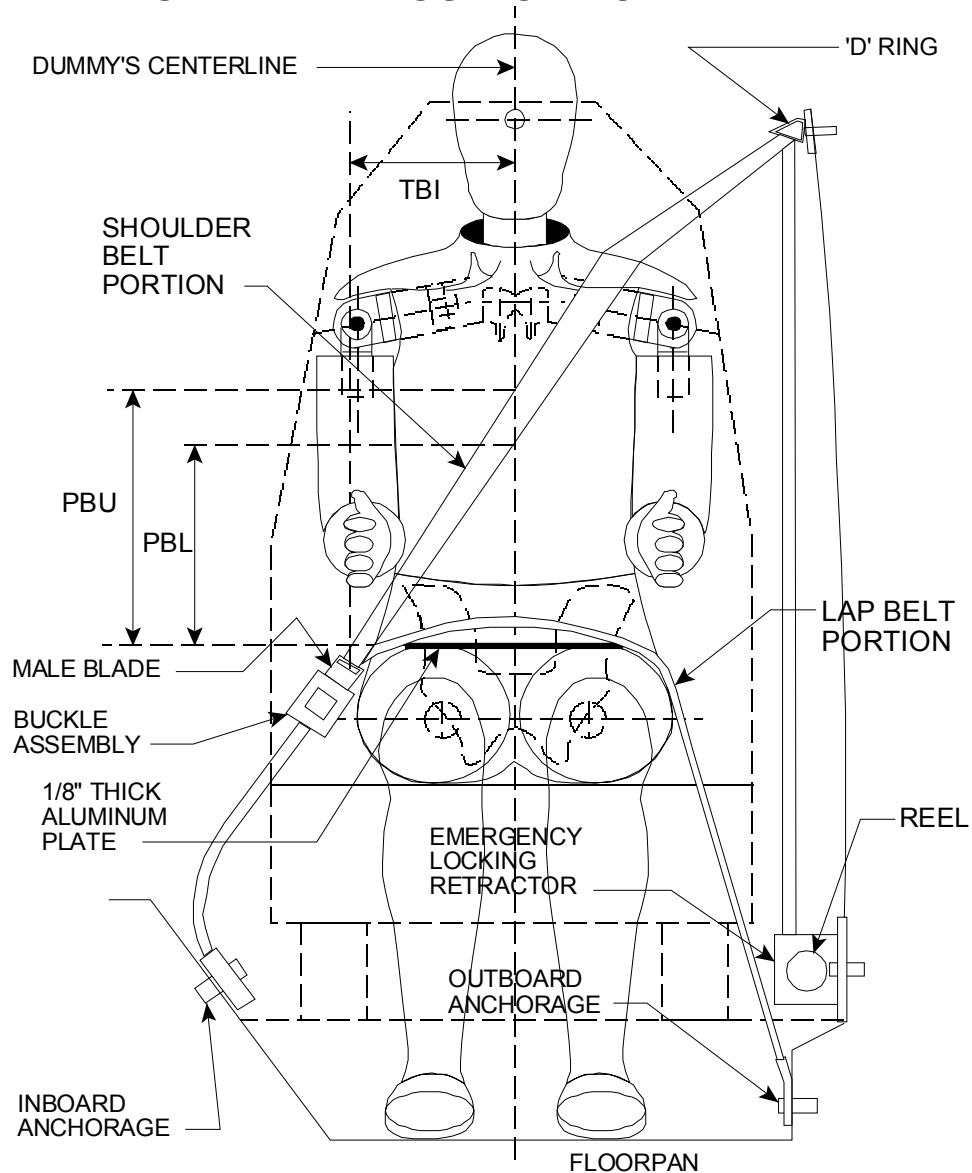
Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C55901
Test Date: 7/21/05

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver SN 511		Passenger SN 516	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		26.2		
SWA	Steering Wheel Angle		67.1		
SCA	Steering Column Angle		23.2		
SA	Seat Back Angle		1.1		16.3
HZ	Head to Roof (Z)	217		202	
HH	Head to Header	319	47.5	327	43.1
HW	Head to Windshield	704	0.0	655	0.0
HR	Head to Side Header (Y)	267		248	
NR	Nose to Rim	270	3.2		
CD	Chest to Dash	474		389	
CS	Chest to Steering Hub	206	14.8		
RA	Rim to Abdomen	110	0.0		
KDL	Left Knee to Dash	162	38.7	114	
KDR	Right Knee to Dash	142		134	29.7
PA	Pelvic Angle		27.2		29.4
TA	Tibia Angle		47.4		49.9
KK	Knee to Knee (Y)	271		170	
SK	Striker to Knee	614	95.3	625	92.1
ST	Striker to Head	464	68.4	493	66.3
SH	Striker to H-Point	328	109.2	233	111.4
SHY	Striker to H-Point (Y)	279		287	
HS	Head to Side Window	372		354	
HD	H-Point to Door (Y)	174		197	
AD	Arm to Door (Y)	147		81	
AA	Ankle to Ankle	272		156	

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	N/A	N/A
PBL - To surface of reference to belt lower edge	mm	N/A	N/A

DATA SHEET 36

CRASH TEST

Test Vehicle: Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Eric Peschman

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	<u>X</u> 32 to 40 kmph	<u> </u> 0 to 48 kmph	<u> </u> 0 to 56 kmph
DRIVER DUMMY:	<u>X</u> 5 TH female	<u> </u> 50 th Male	
PASSENGER DUMMY:	<u>X</u> 5 TH female	<u> </u> 50 th Male	

- | | |
|----------|---|
| <u>X</u> | 1. Vehicle underbody painted |
| <u>X</u> | 2. The speed measuring devices are in place and functioning. |
| <u>X</u> | 3. The speed measuring devices are <u>1.0</u> m from the barrier (spec. 1.5m) and <u>30</u> cm from the barrier (spec. is 30 cm) |
| <u>X</u> | 4. Convertible top is in the closed position. |
| <u>X</u> | <u>X</u> N/A, not a convertible |
| <u>X</u> | 5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected. |
| <u>X</u> | 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information. |

<u>250</u> kpa front left tire	<u>250</u> kpa specified on tire placard or in owner information
<u>250</u> kpa front right tire	<u>250</u> kpa specified on tire placard or in owner information
<u>250</u> kpa rear left tire	<u>250</u> kpa specified on tire placard or in owner information
<u>250</u> kpa rear right tire	<u>250</u> kpa specified on tire placard or in owner information

- | | |
|----------|---|
| <u>X</u> | 7. Time zero contacts on barrier in place. |
| <u>X</u> | 8. Pre test zero and shunt calibration adjustments performed and recorded |
| <u>X</u> | 9. Dummy temperature meets requirements of section 12.2 of the test procedure. |
| <u>X</u> | 10. Vehicle hood closed and latched |
| <u>X</u> | 11. Transmission placed in neutral |
| <u>X</u> | 12. Parking brake off |
| <u>X</u> | 13. Ignition in the ON position |
| <u>X</u> | 14. Doors closed and latched but not locked |
| <u>X</u> | 15. Posttest zero and shunt calibration checks performed and recorded |
| <u>X</u> | 16. Actual test speed <u>39.8</u> kmph |
| <u>X</u> | 17. Vehicle rebound from the barrier <u>317</u> cm |
| <u>X</u> | 18. Describe whether the doors open after the test and what method is used to open the doors. |
- | | |
|----------|---|
| <u>X</u> | Left Front Door: Door remained closed and latched; Door opened without tools |
| <u>X</u> | Right Front Door: Door remained closed and latched; Door opened without tools |
| <u>X</u> | Left Rear Door: Door remained closed and latched; Door opened without tools |
| <u>X</u> | Right Rear Door: Door remained closed and latched; Door opened without tools |

- ☒ 19. Describe the contact points of the dummy with the interior of the vehicle.
- | | |
|-------------------------------------|--|
| ☒ | Driver Dummy: Head to Air Bag and Headrest; Chest and Abdomen to Air bag;
Knees to Knee Bolster |
| ☒ | Passenger Dummy: Head to Air Bag and Headrest; Chest and Abdomen to Air Bag;
Knees to Glove Box |

REMARKS:

I certify that I have read and performed each instruction.

Signature: 

Date: 7/21/05

DATA SHEET NO. 38

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	☒ 32 to 40 kmph	☐ 0 to 48 kmph	☐ 0 to 56 kmph
DRIVER DUMMY:	☒ 5 TH female	☐ 50 th Male	
PASSENGER DUMMY:	☒ 5 TH female	☐ 50 th Male	

Vehicle Year/Make/Model/Body Style:	2005 / Volvo / S40 / Passenger Car
VIN:	YV1MS382852049889
Wheelbase:	2642 mm
Build Date:	06/04
Vehicle Size Category:	3
Test Weight:	1556.3 kg
Front Overhang:	847 mm
Overall Width:	1759 mm
Overall Length Center:	4431 mm

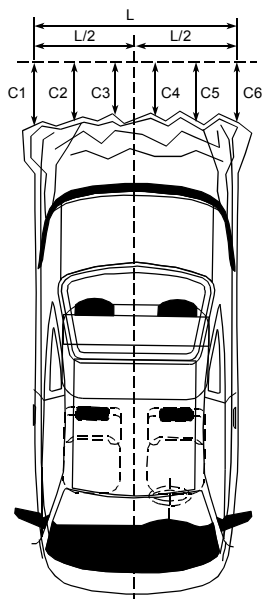
Accelerometer Data	
Location:	As per measurements on Data Sheet 31
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	39.8 kmph
Time of Separation:	118.4 ms
Velocity Change:	45.8 kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
 Midpoint of Damage: Vehicle Longitudinal Centerline
 Damage Region Length (mm): 1522
 Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4197	4150	47
C2	Crush zone 2 at left side	mm	4353	4201	152
C3	Crush zone 3 at left side	mm	4428	4221	207
C4	Crush zone 4 at right side	mm	4429	4230	199
C5	Crush zone 5 at right side	mm	4357	4209	148
C6	Crush zone 6 at right side	mm	4201	4130	71



REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Kozinski*

Date: 7/21/05

DATA SHEET 39 **WINDSHIELD MOUNTING (FMVSS 212)**

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	☒ 32 to 40 kmph	☐ 0 to 48 kmph	☐ 0 to 56 kmph
DRIVER DUMMY:	☒ 5 TH female		☐ 50 th Male
PASSENGER DUMMY:	☒ 5 TH female		☐ 50 th Male

1. Pre-Crash
 - ☒ 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.

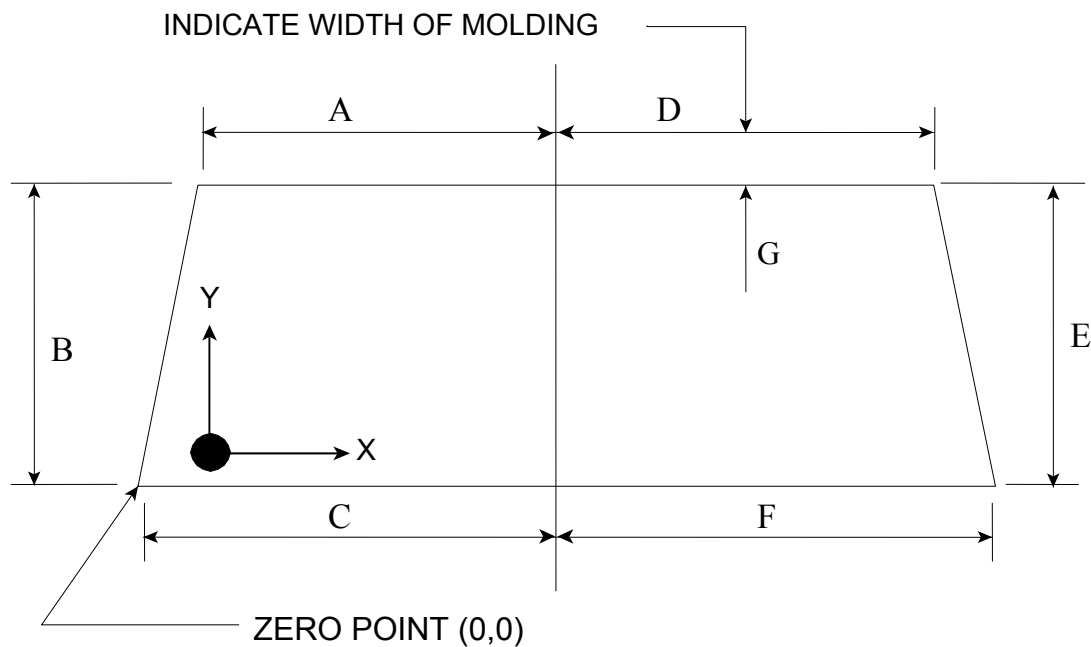
 Retained with glue
 Plastic and rubber trim
 - ☒ 1.2 Mark the longitudinal centerline of the windshield
 - ☒ 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.
 - ☒ 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.
 - ☒ 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.
 Dimension G (mm): 5 mm
2. Post Crash
 - ☒ 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?
 - ☒ No – Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.
 - ☐ Yes, go to 2.2
 - ☐ 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.
 - ☐ 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.
 - ☐ 2.4 Calculate and record the percent retention for the right and left side of the windshield.
 - ☐ 2.5 Is total right side percent retention less than 75%?
 - ☐ Yes, Fail
 - ☐ No, Pass
 - ☐ 2.6 Is total left side percent retention less than 75%?
 - ☐ Yes, Fail
 - ☐ No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	602	602	100%
	B	833	833	100%
	C	733	733	100%
	Total	2168	2168	100%
Right Side	D	602	602	100%
	E	833	833	100%
	F	733	733	100%
	Total	2168	2168	100%

Indicate area of mounting failure. NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

I certify that I have read and performed each instruction.

Signature: *Thick Kozinski*

Date: 7/21/05

DATA SHEET 40
WINDSHIELD ZONE INTRUSION (FMVSS 219)

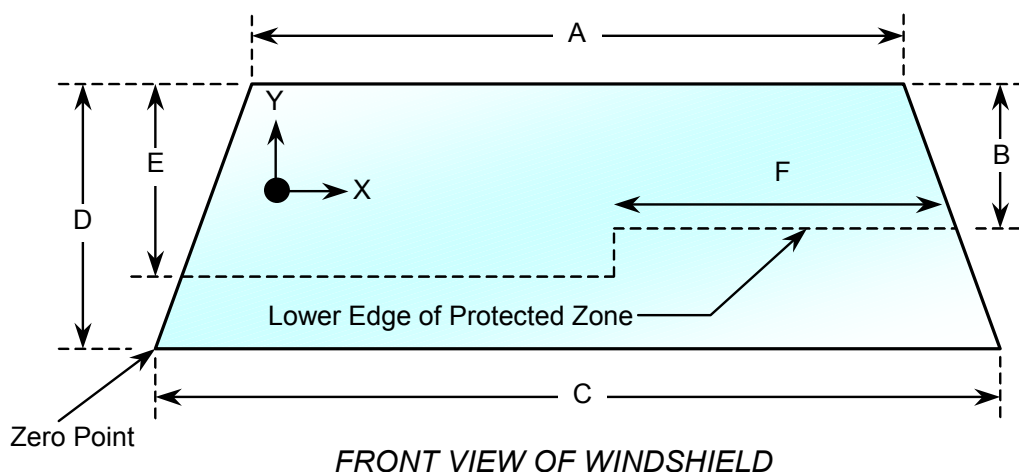
Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance
 Test Technician: Nick Kosinski

NHTSA No.: C55901
 Test Date: 7/21/05

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	☒ 32 to 40 kmph	☐ 0 to 48 kmph	☐ 0 to 56 kmph
DRIVER DUMMY:	☒ 5 TH female	☐ 50 th Male	
PASSENGER DUMMY:	☒ 5 TH female	☐ 50 th Male	

- ☒ 1. Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))
- ☒ 2. Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))
- ☒ 3. From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))
- ☒ 4. Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3
- ☒ 5. After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1204
B	mm	556
C	mm	1466
D	mm	833
E	mm	525
F	mm	493

AREA OF PROTECTED ZONE FAILURES:

- B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

- C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

REMARKS:

I certify that I have read and performed each instruction.

Signature:

Thick Kosinski

Date:

7/21/05

DATA SHEET 41
FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle: 2005 Volvo S40
Test Program: FMVSS 208 Compliance
Test Technician: Eric Peschman

NHTSA No.: C55901
Test Date: 7/21/05

TYPE OF IMPACT:	25 mph Unbelted Flat Frontal
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Stoddard Solvent Spillage Measurements

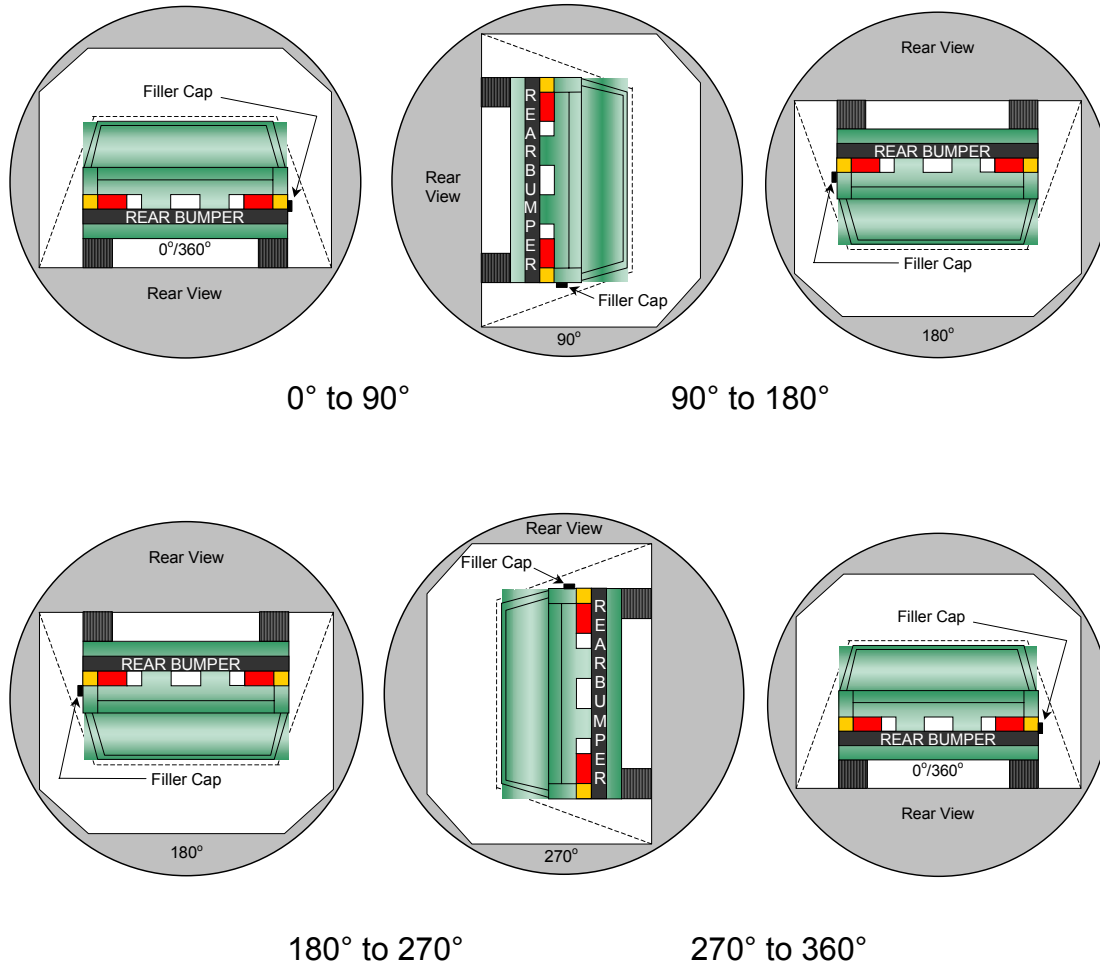
- A. From impact until vehicle motion ceases: 0.0 grams
(Maximum Allowable = 28 grams)
- B. For the 5 minute period after motion ceases: 0.0 grams
(Maximum Allowable = 142 grams)
- C. For the following 25 minutes: 0.0 grams
(Maximum Allowable = 28 grams/minute)
- D. Spillage: NONE

REMARKS: NO SPILLAGE

DATA SHEET NO. 41
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2005 Volvo S40
 Test Program: FMVSS 208 Compliance

NHTSA No.: C55901
 Test Date: 7/21/05



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: **The post test FMVSS 301 rollover was not conducted at direction of the COTR.**

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°			
90° to 180°			
180° to 270°			
270° to 360°			

APPENDIX A
CRASH TEST DATA

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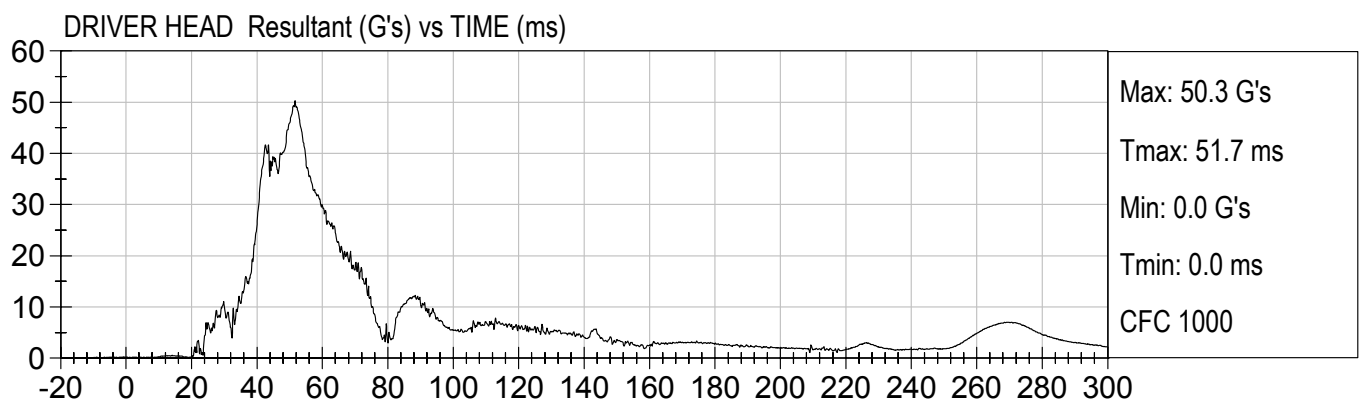
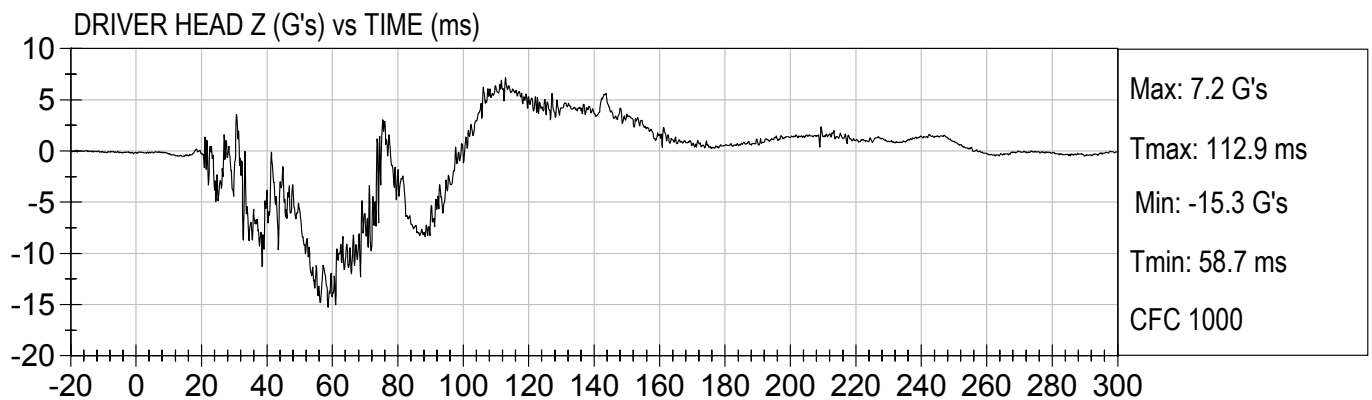
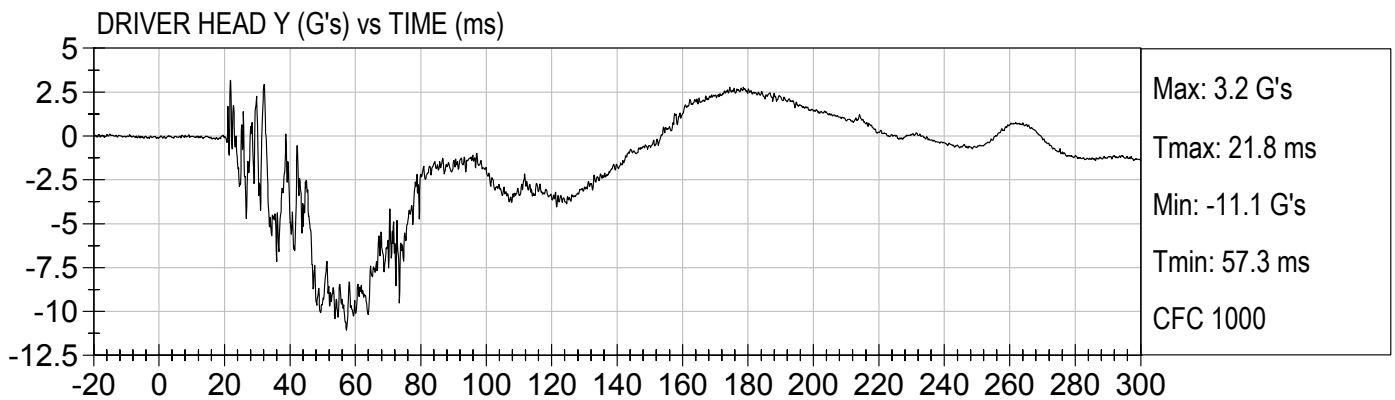
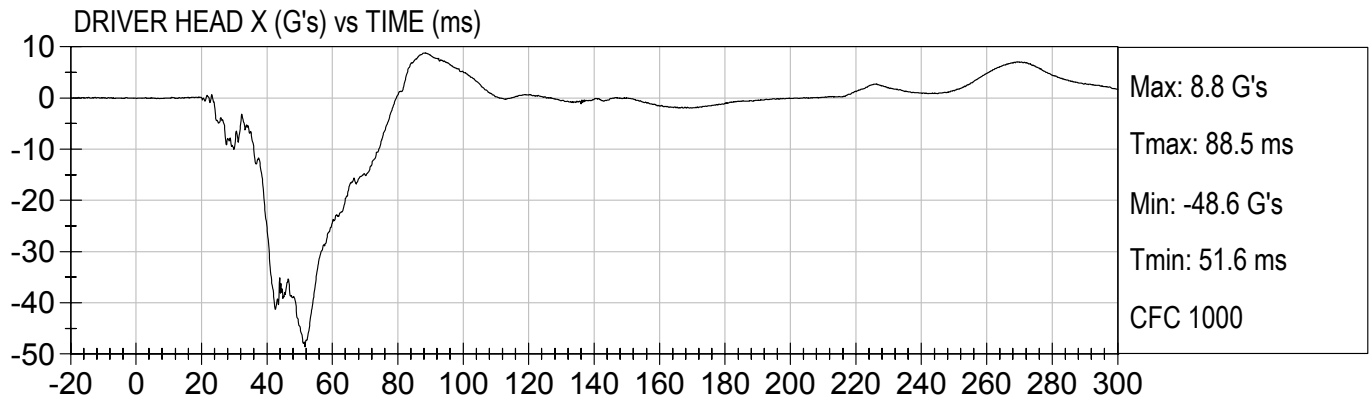
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25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)

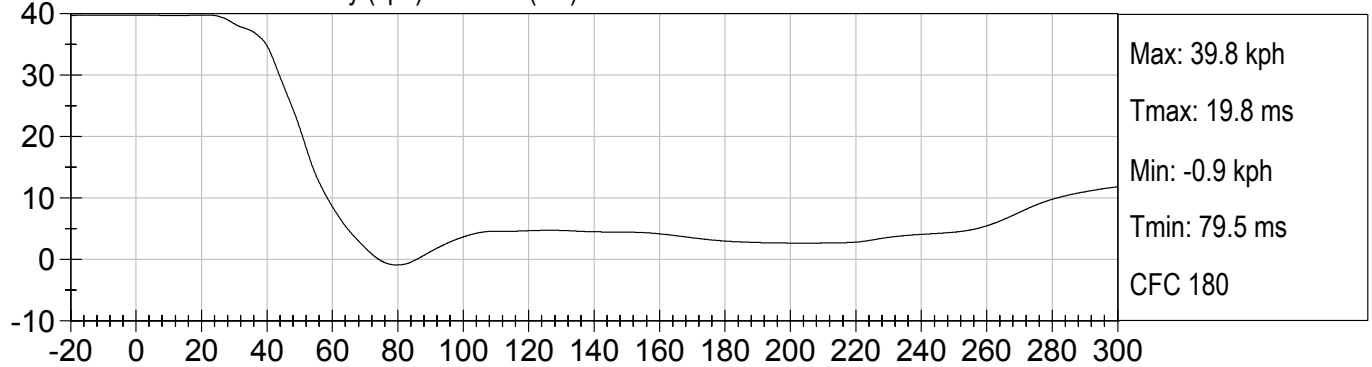




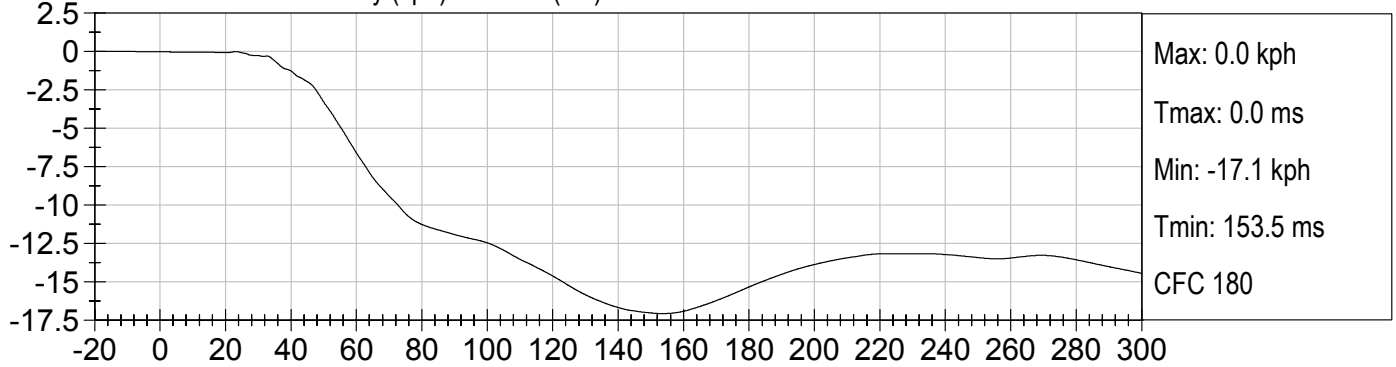
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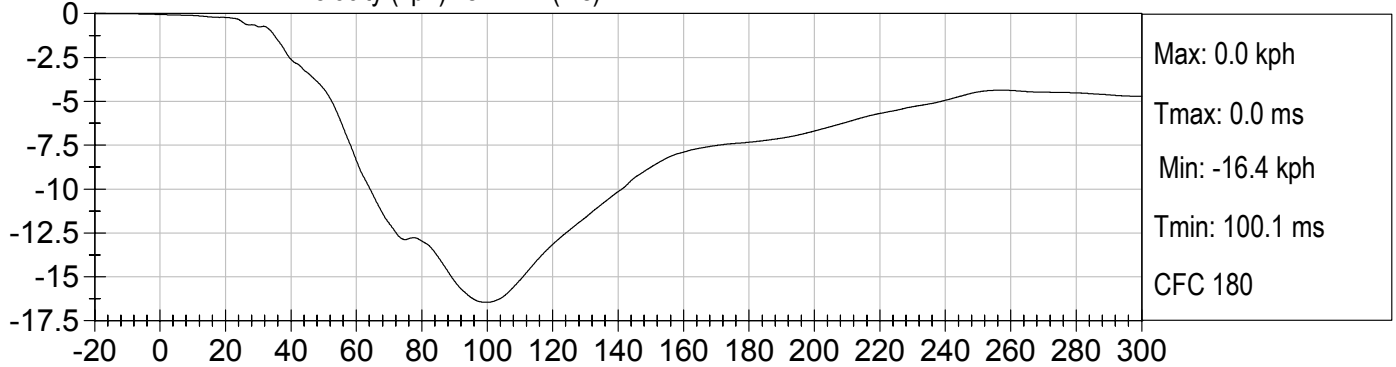
DRIVER HEAD X Velocity (kph) vs TIME (ms)



DRIVER HEAD Y Velocity (kph) vs TIME (ms)



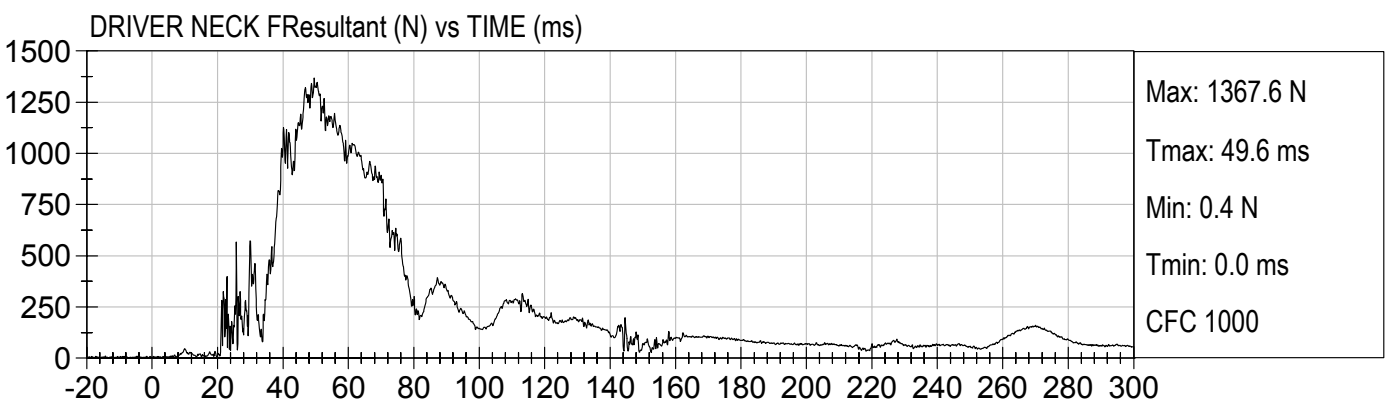
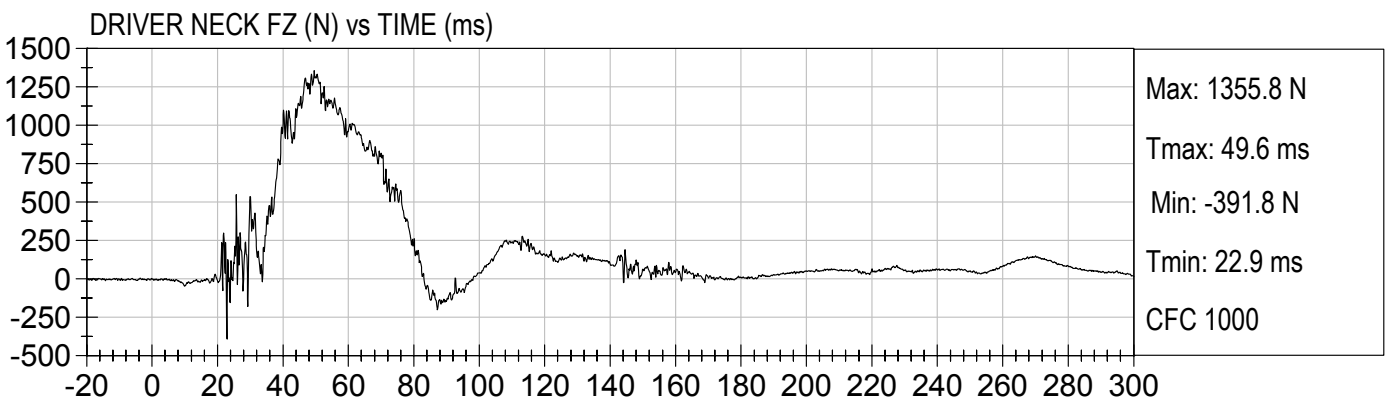
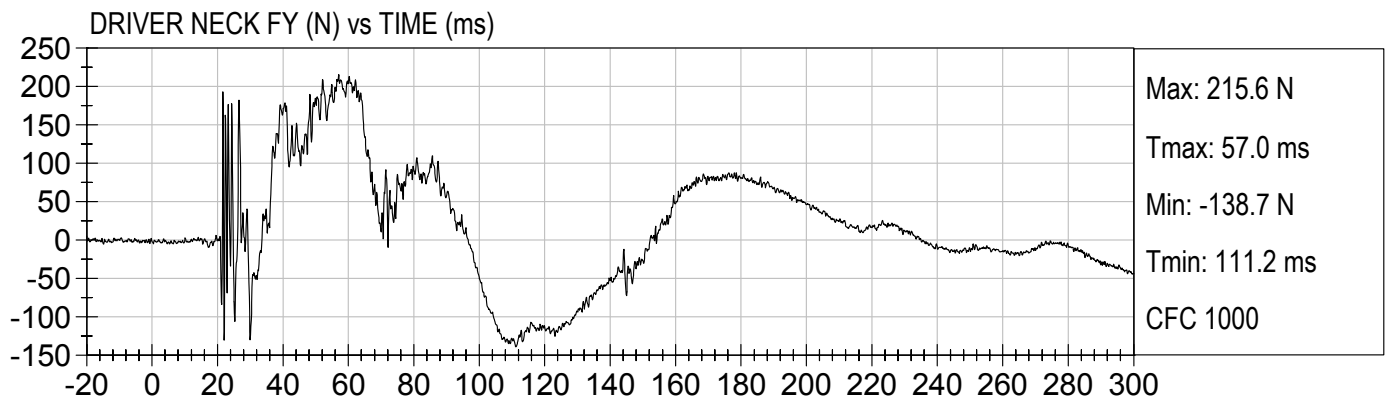
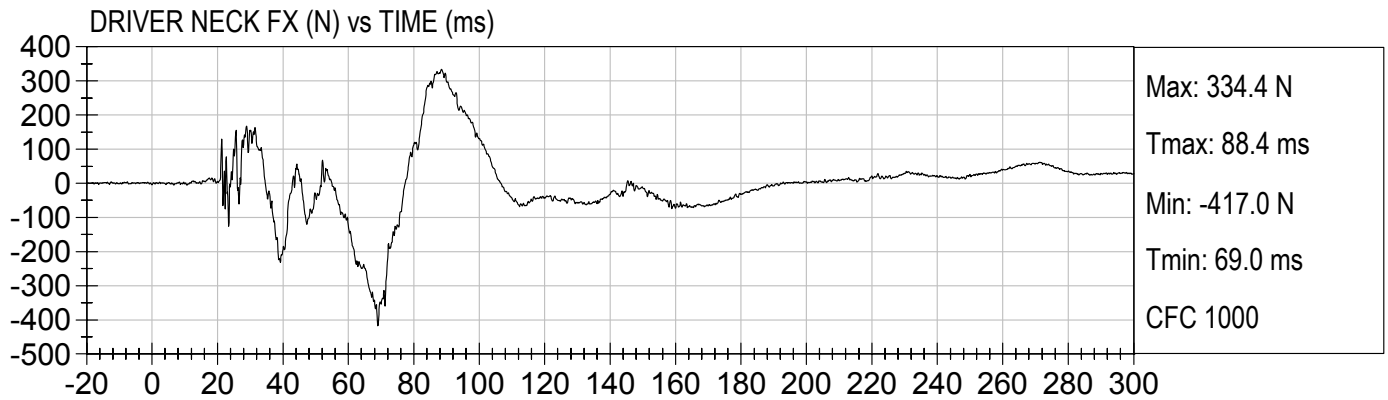
DRIVER HEAD Z Velocity (kph) vs TIME (ms)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

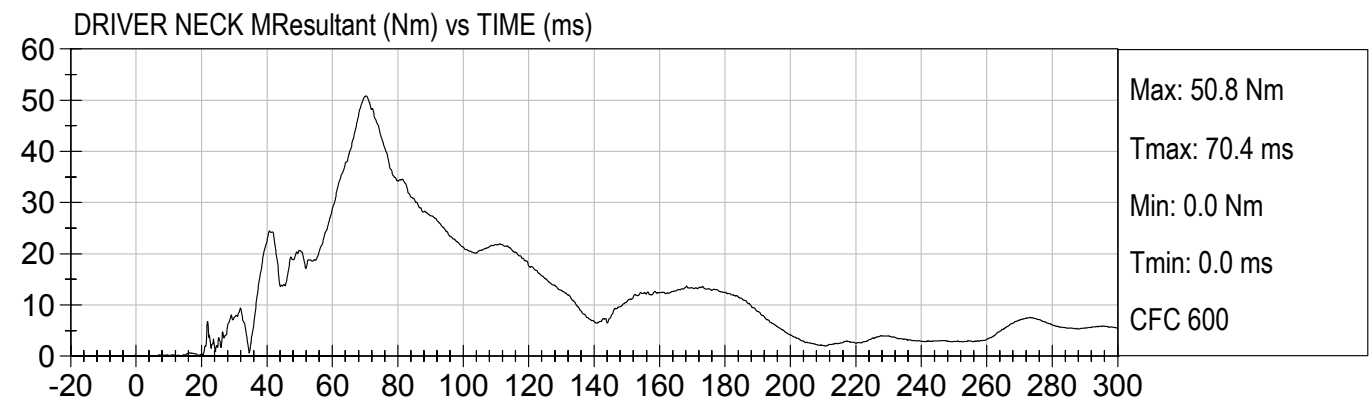
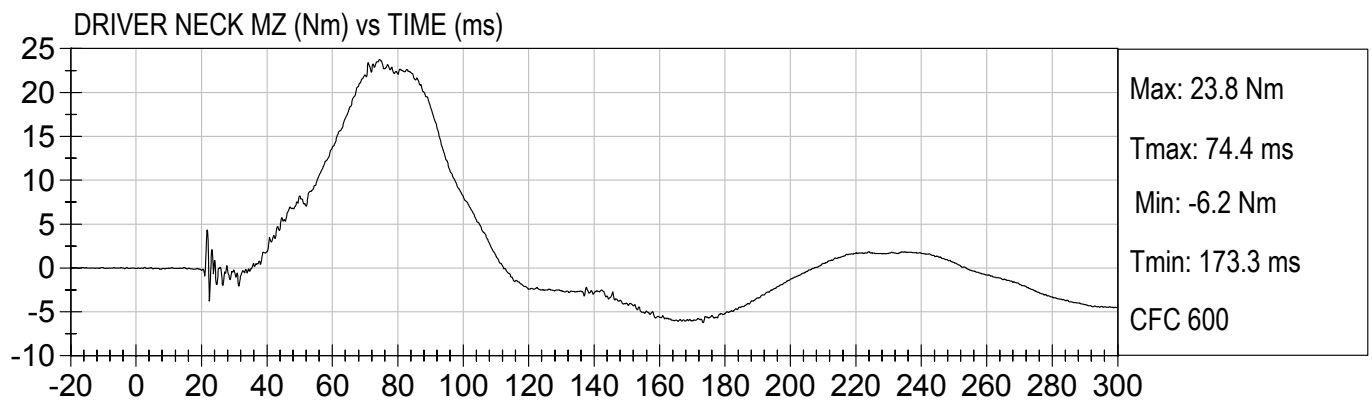
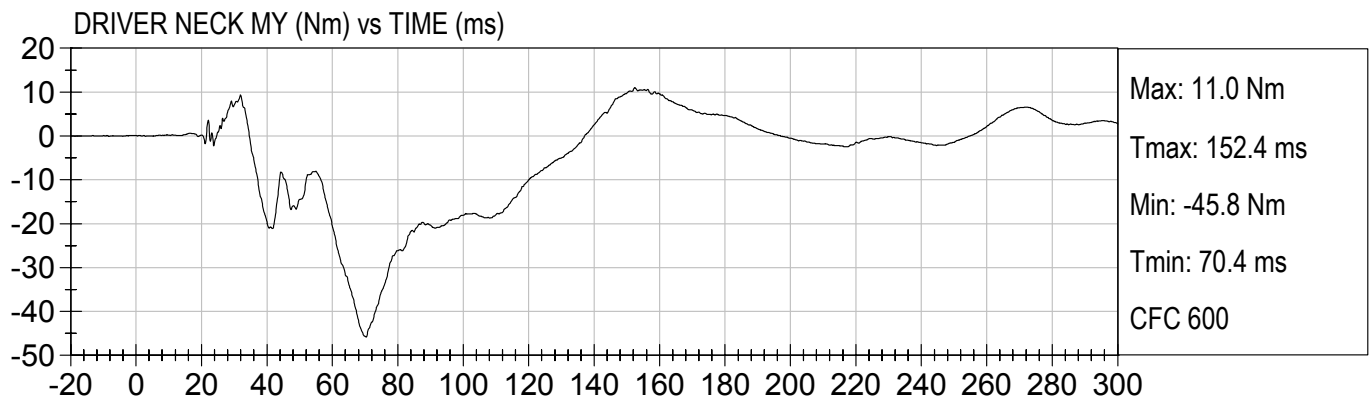
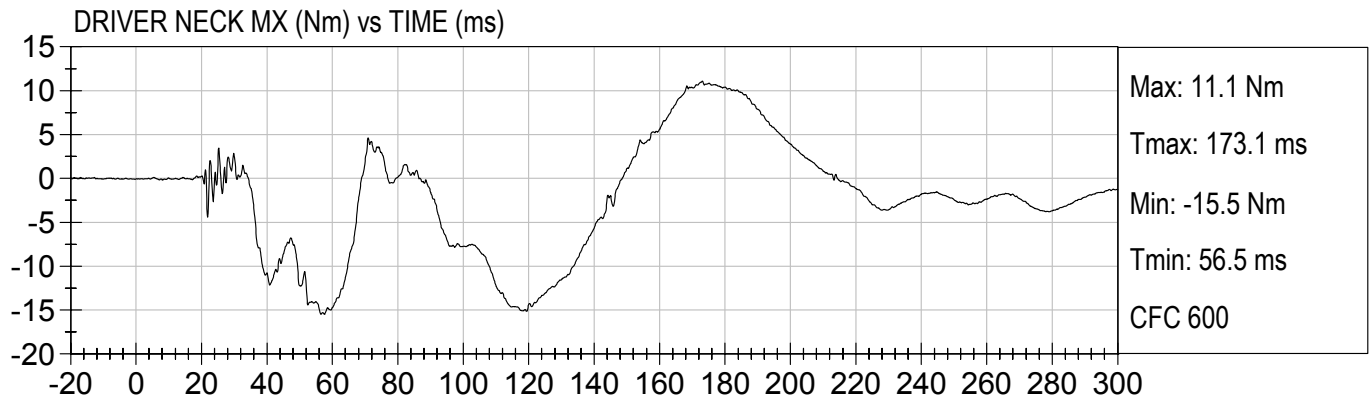
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25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

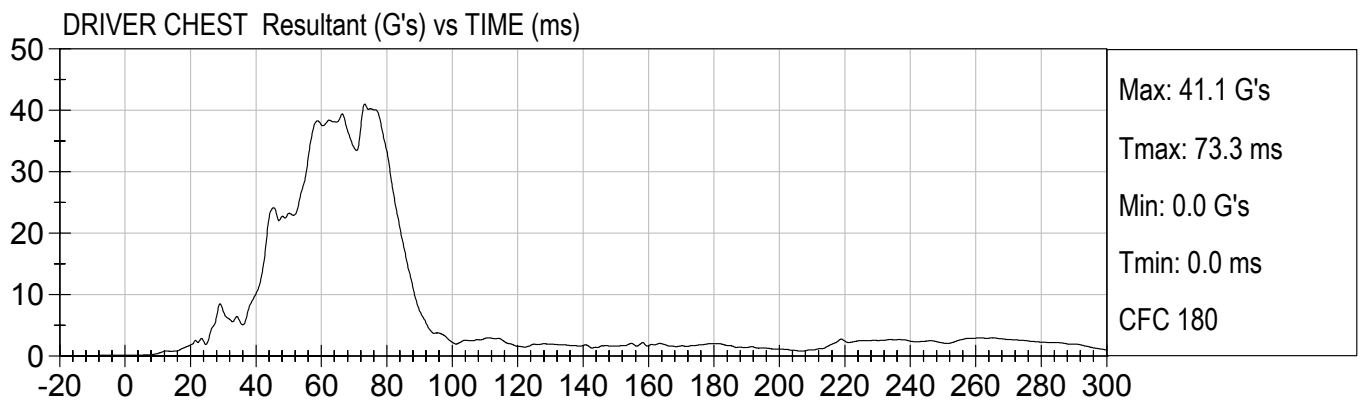
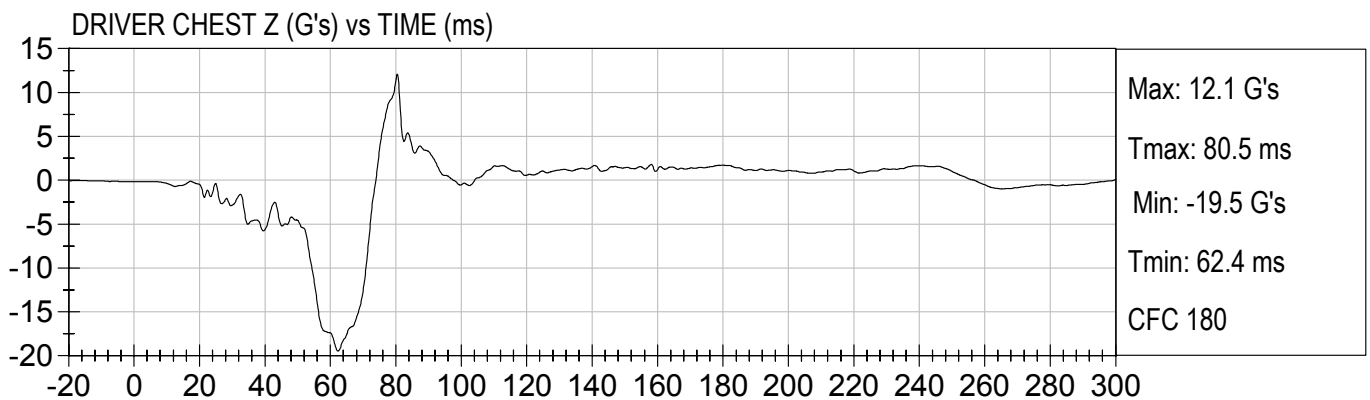
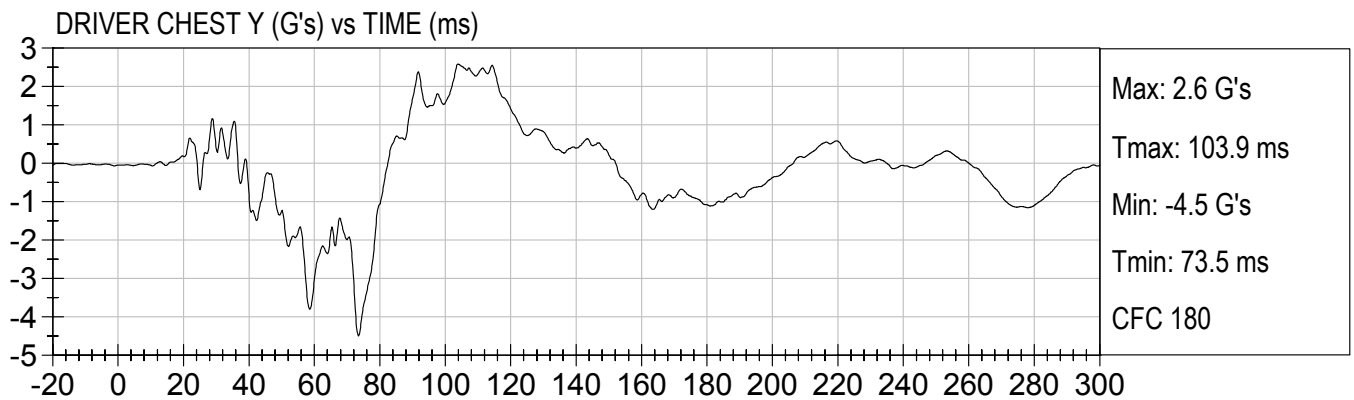
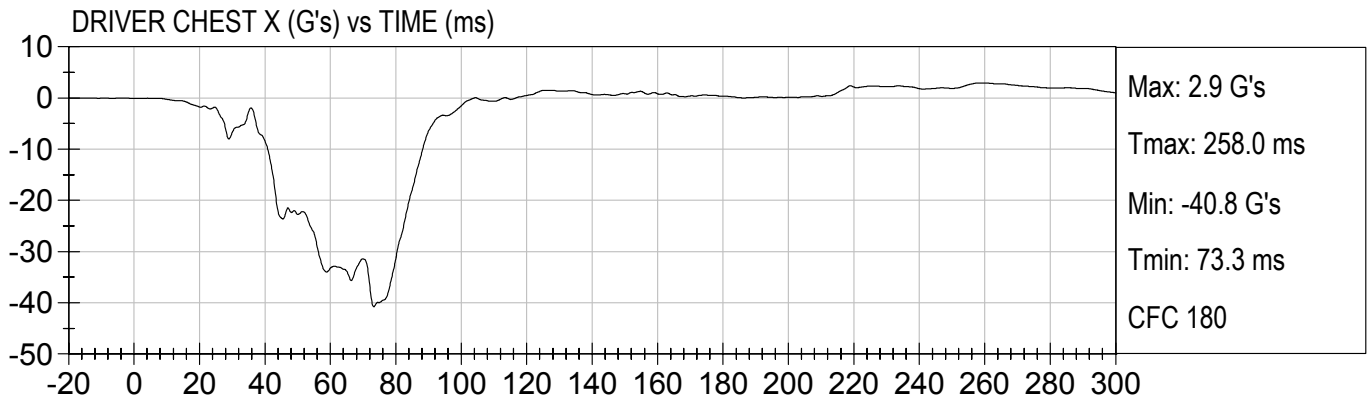
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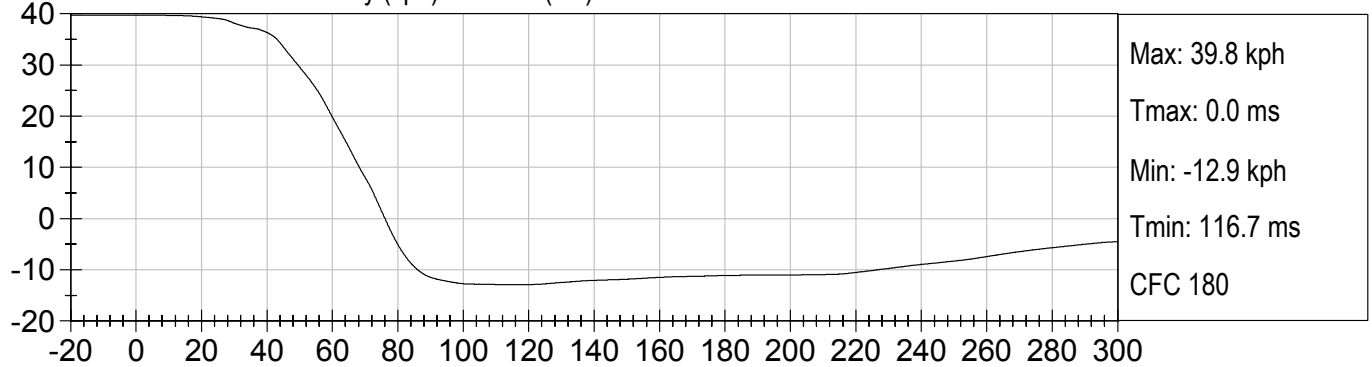




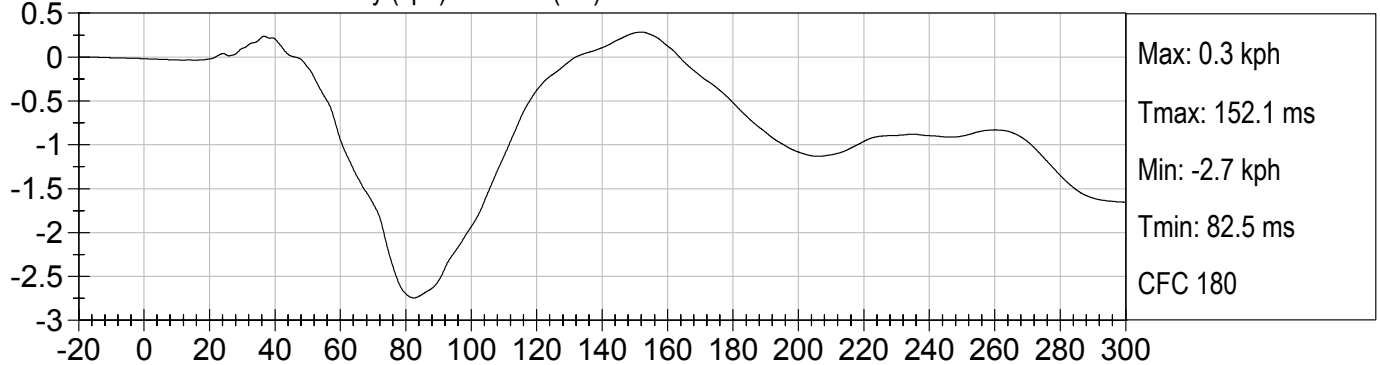
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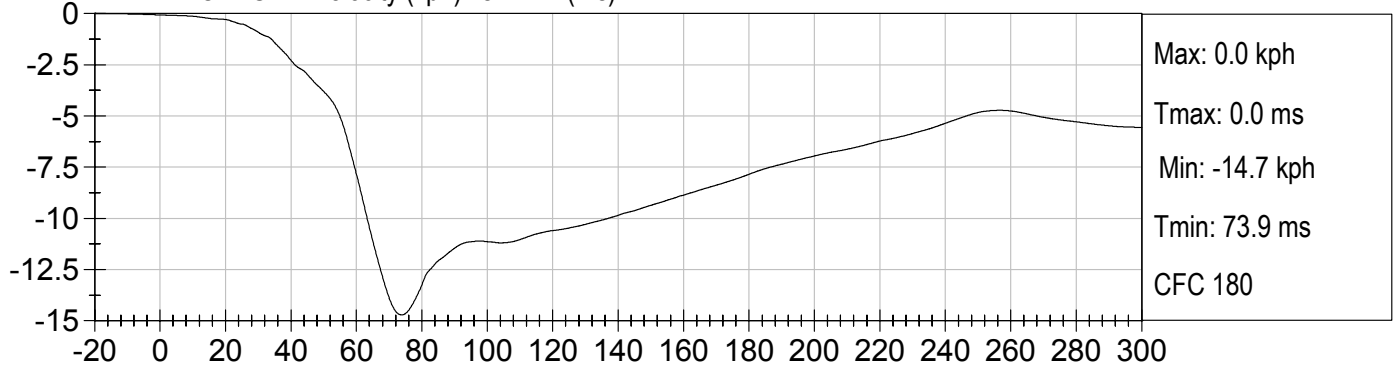
DRIVER CHEST X Velocity (kph) vs TIME (ms)



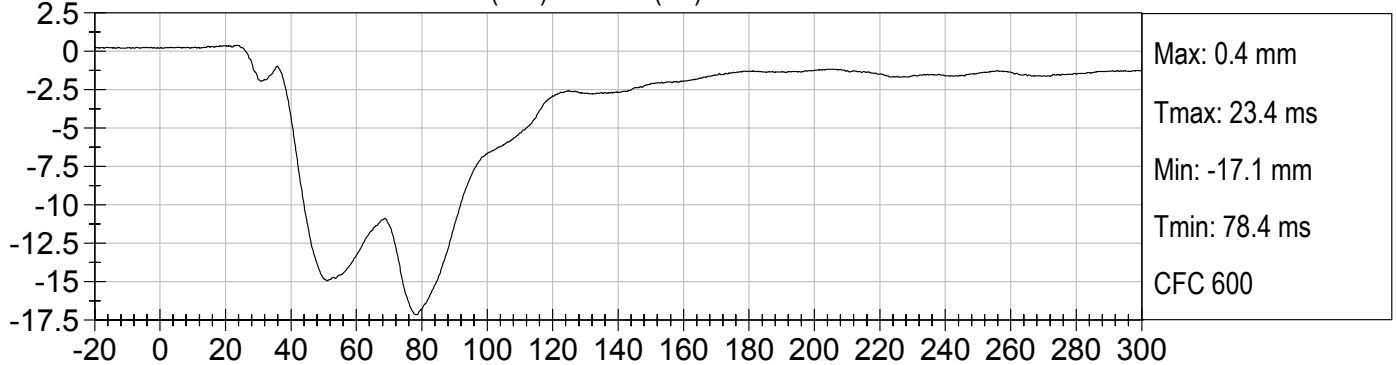
DRIVER CHEST Y Velocity (kph) vs TIME (ms)



DRIVER CHEST Z Velocity (kph) vs TIME (ms)



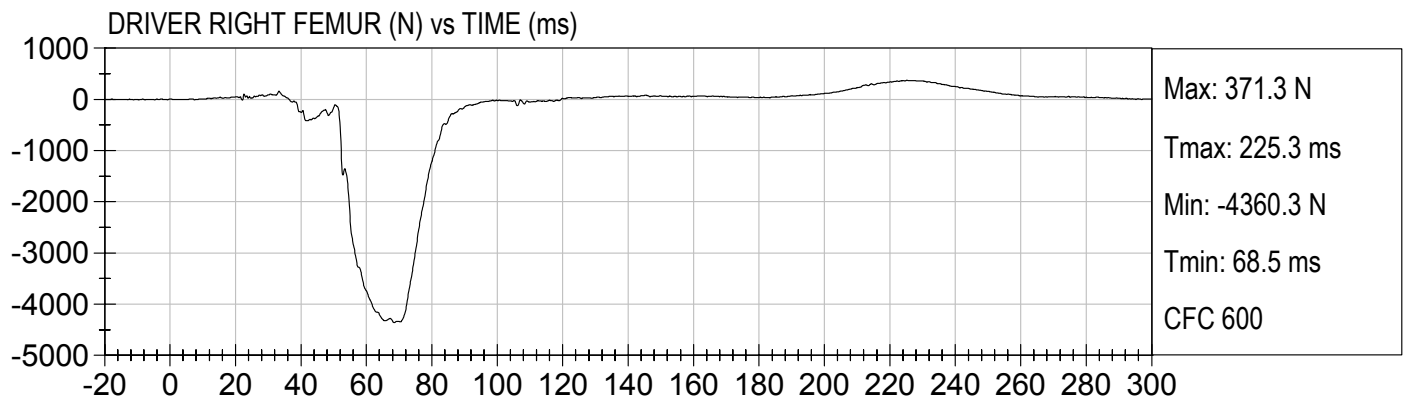
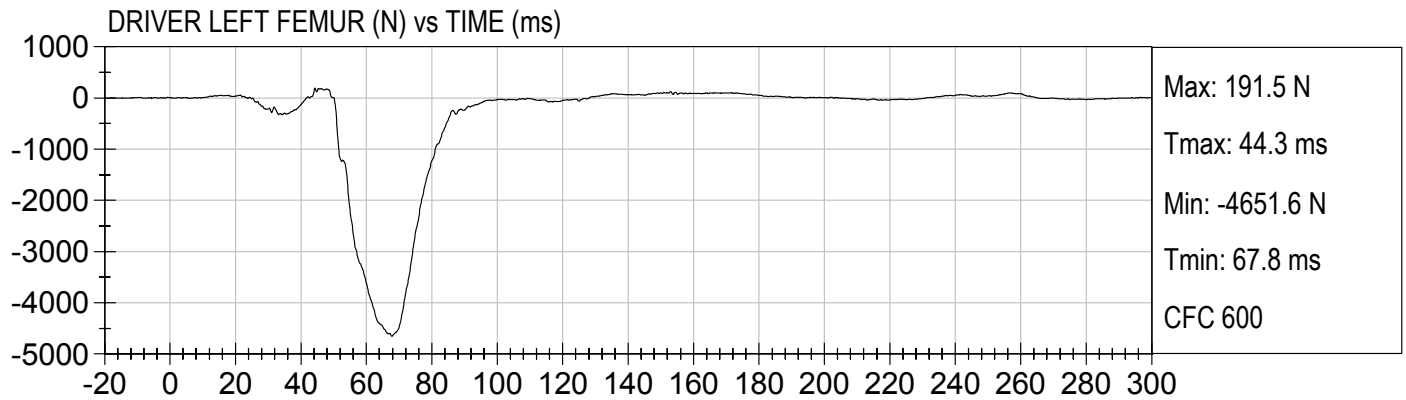
DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

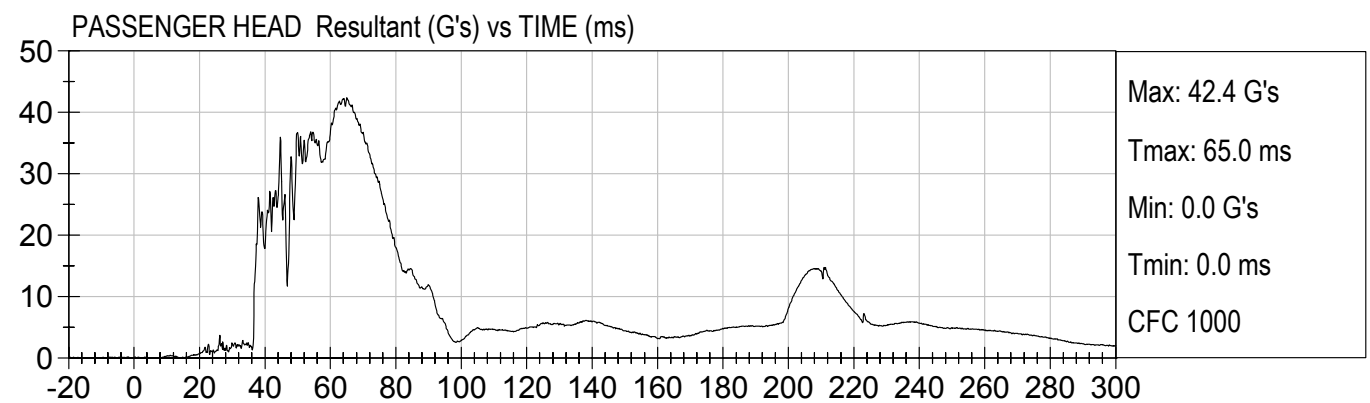
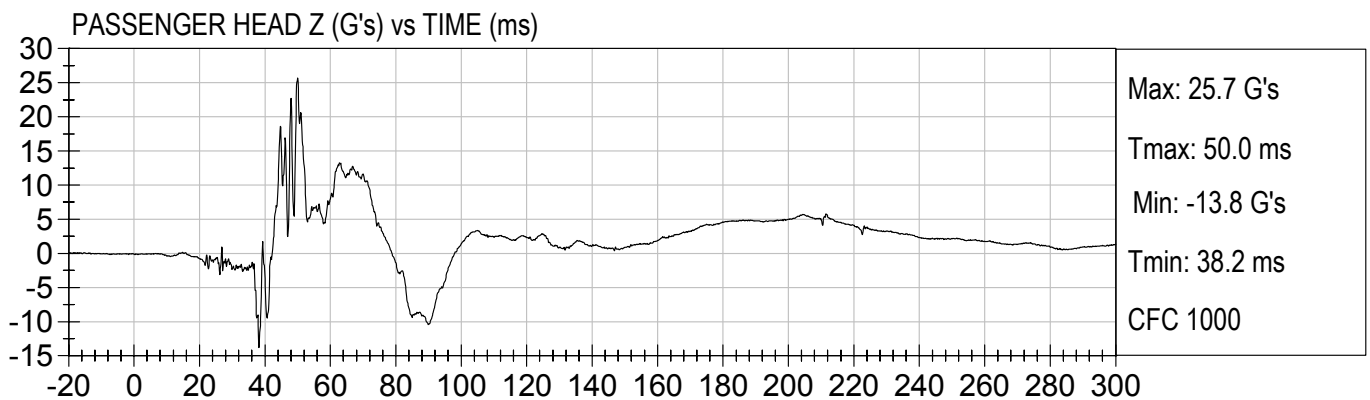
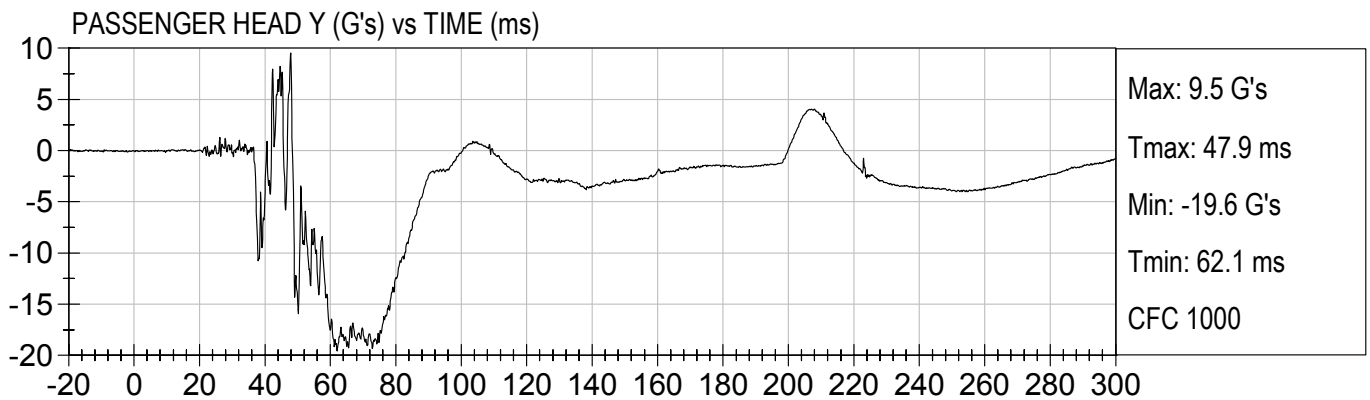
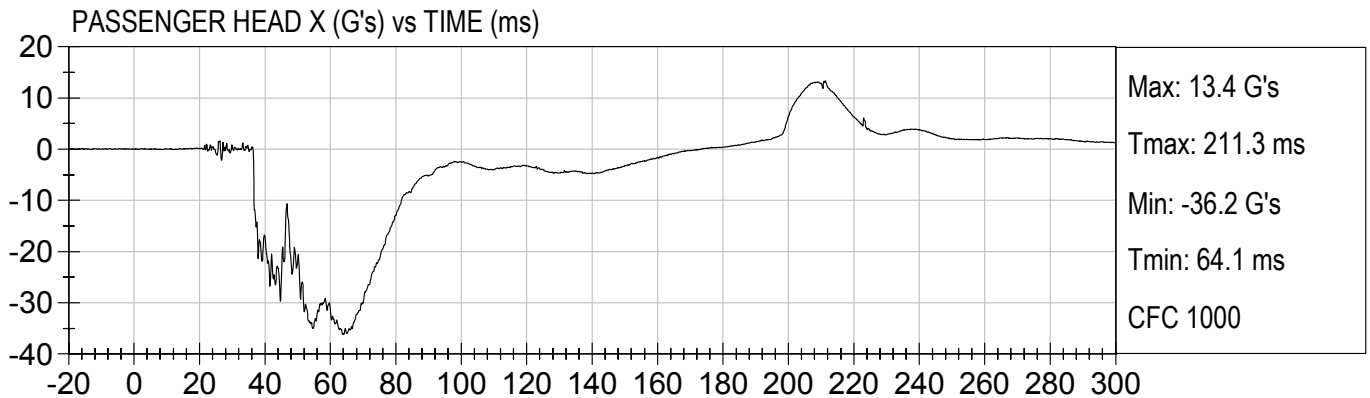
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2005 VOLVO S40 (C55901)

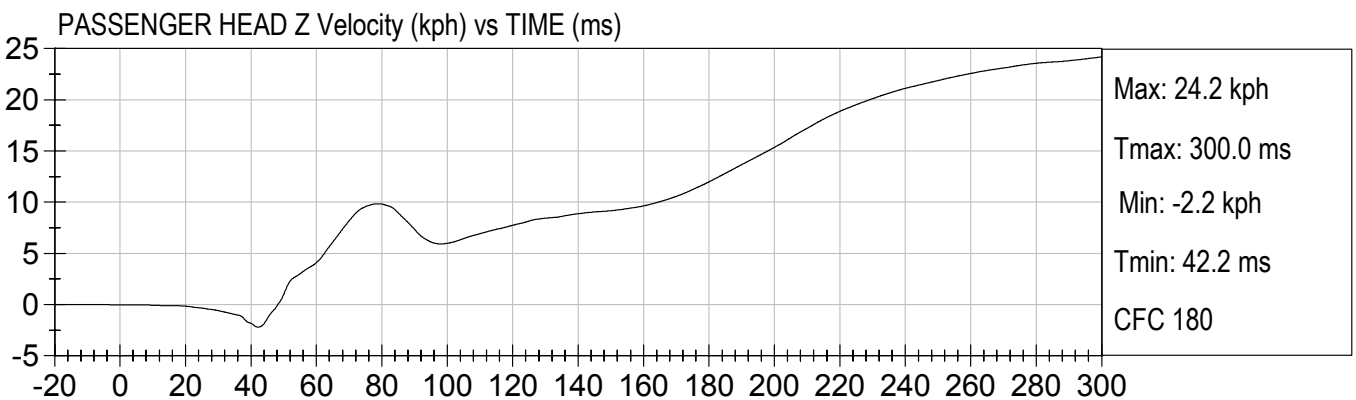
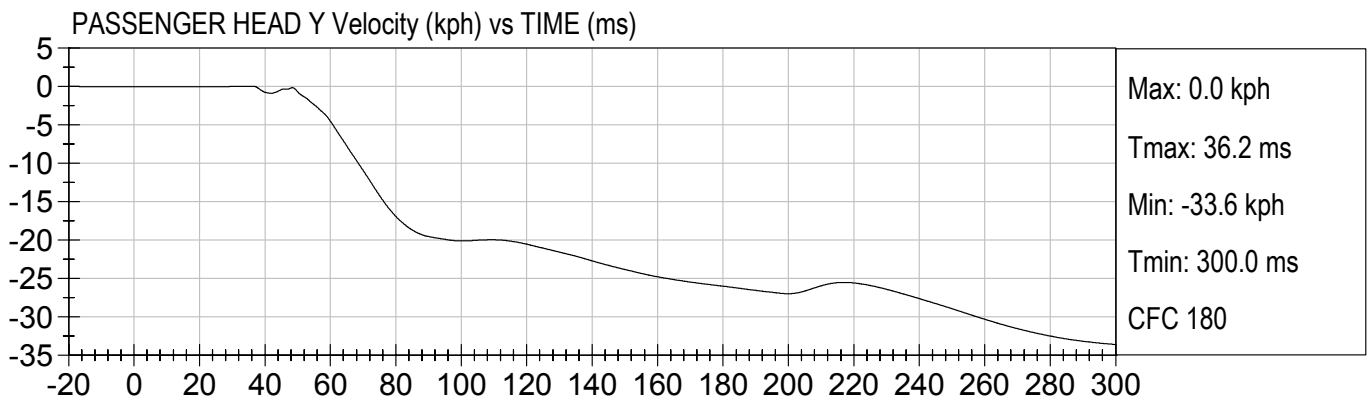
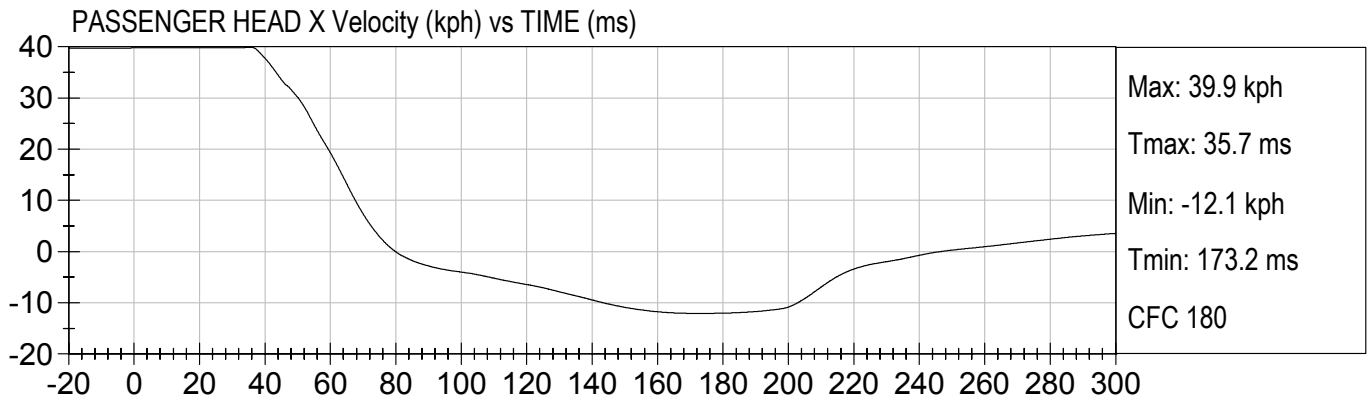
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25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

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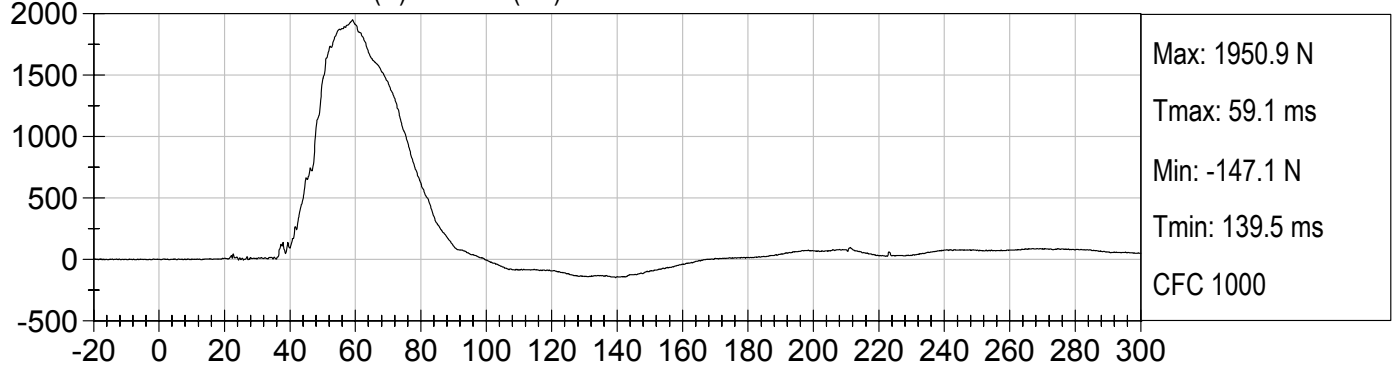




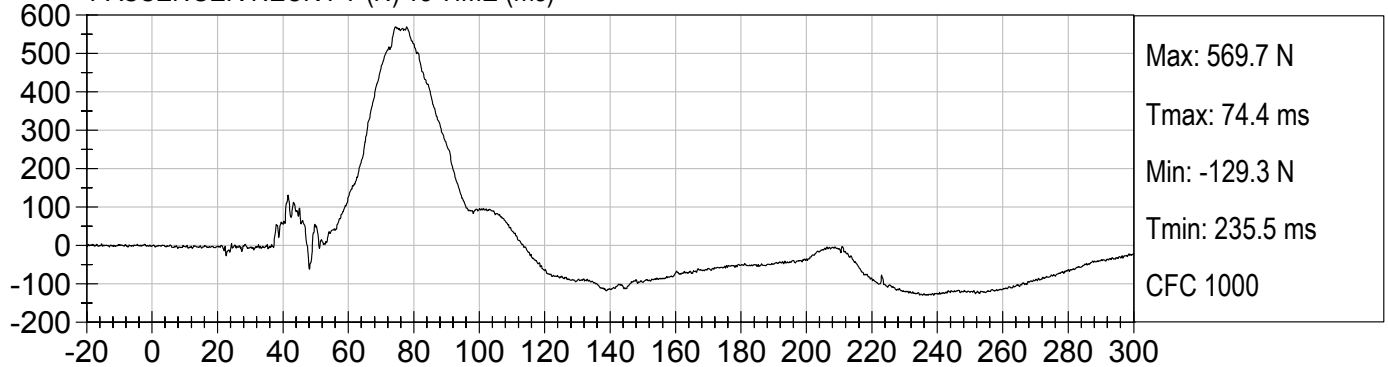
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2005 VOLVO S40 (C55901)

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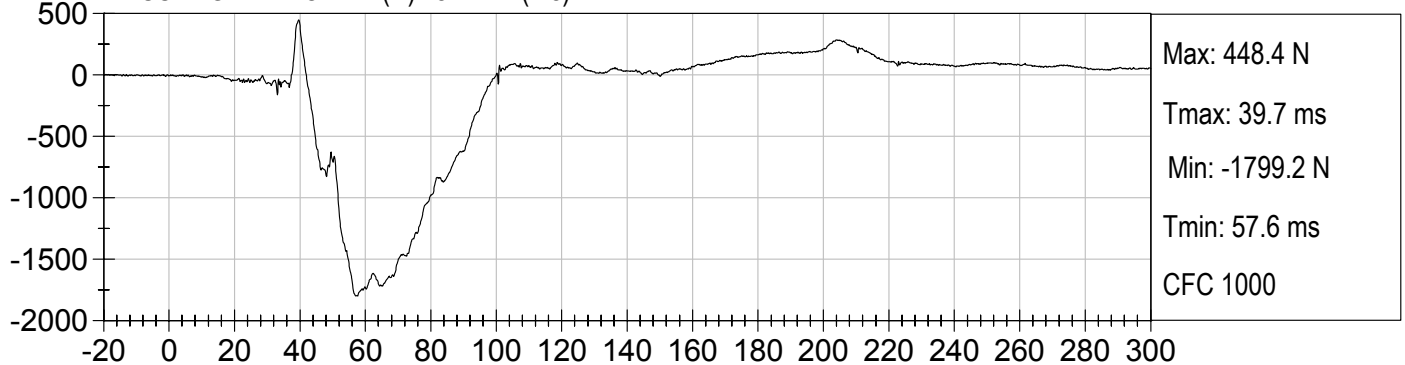
PASSENGER NECK FX (N) vs TIME (ms)



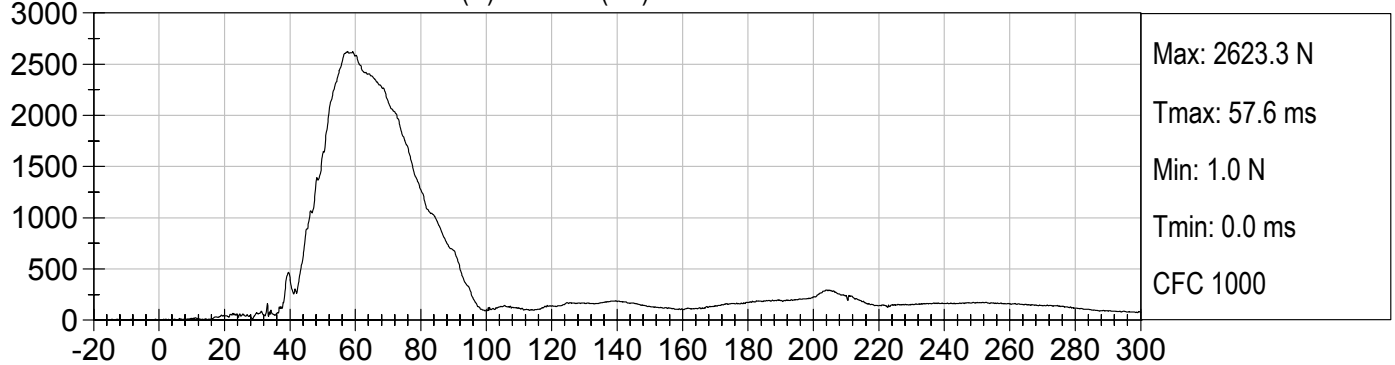
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



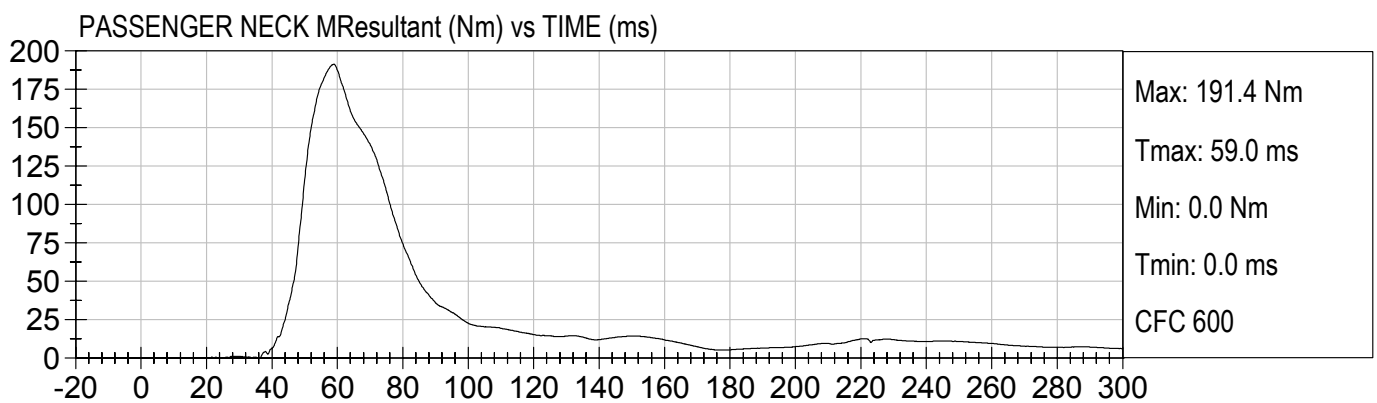
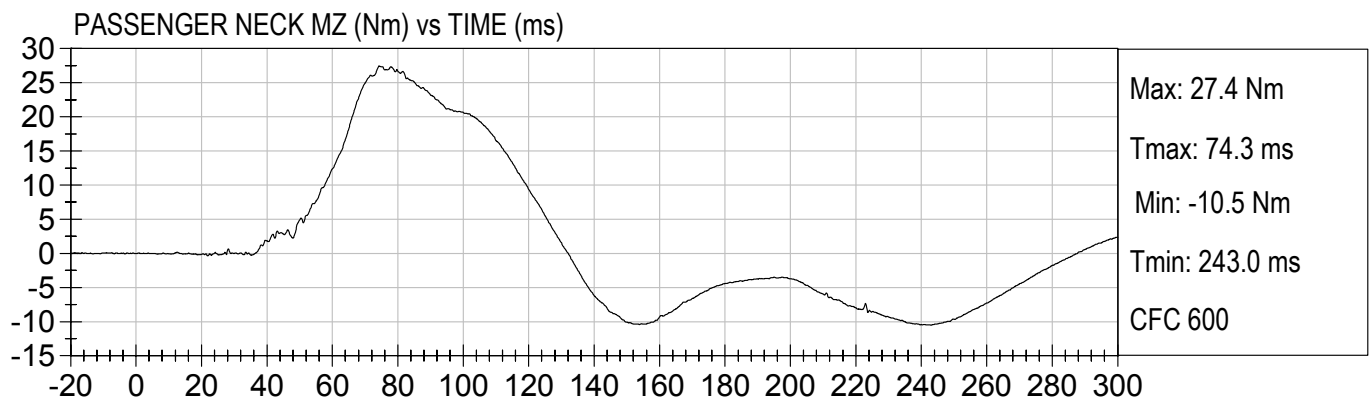
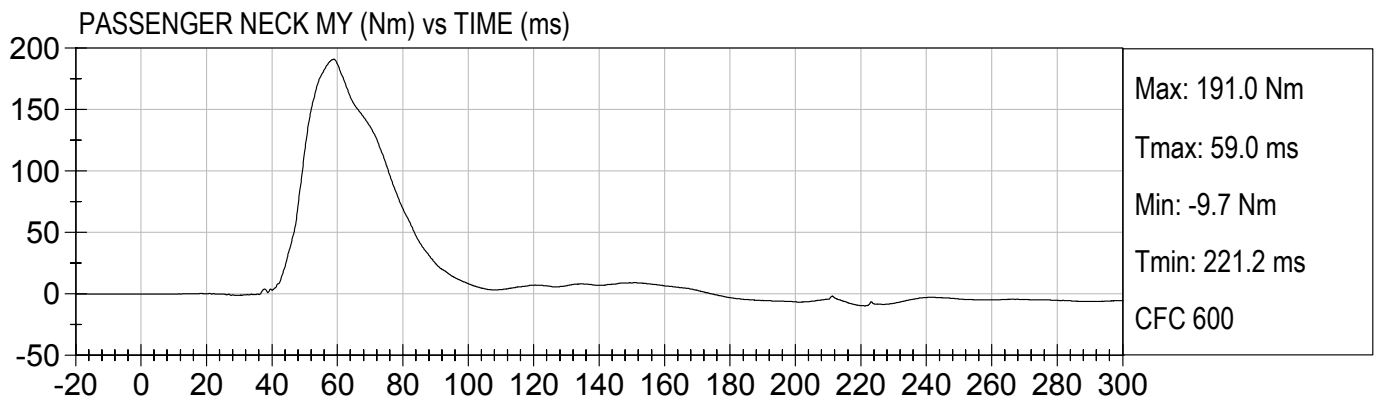
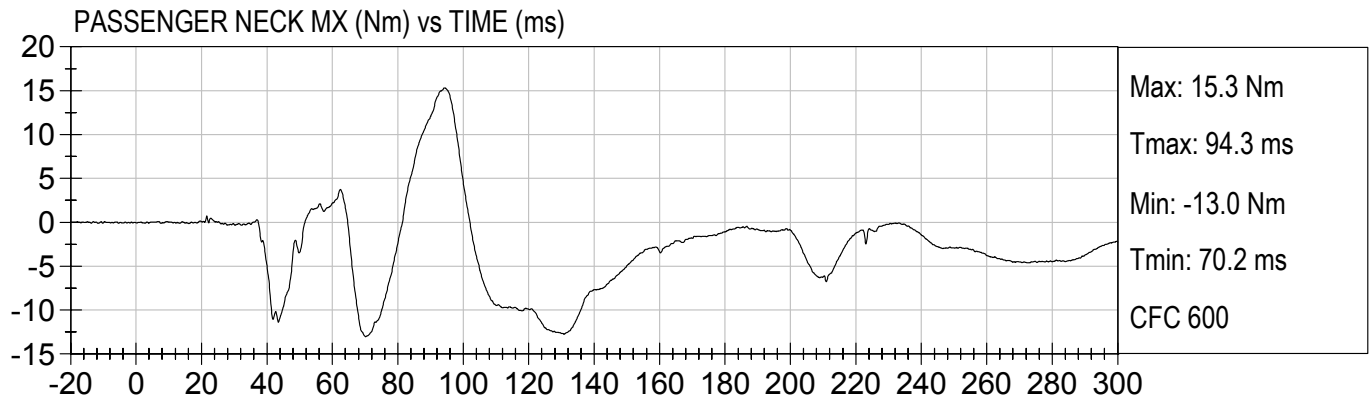
PASSENGER NECK FResultant (N) vs TIME (ms)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

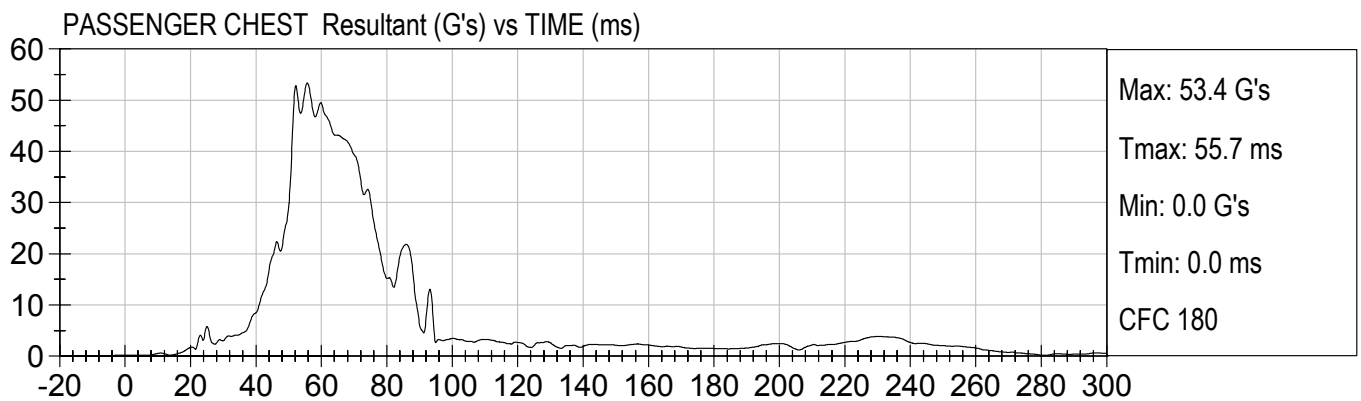
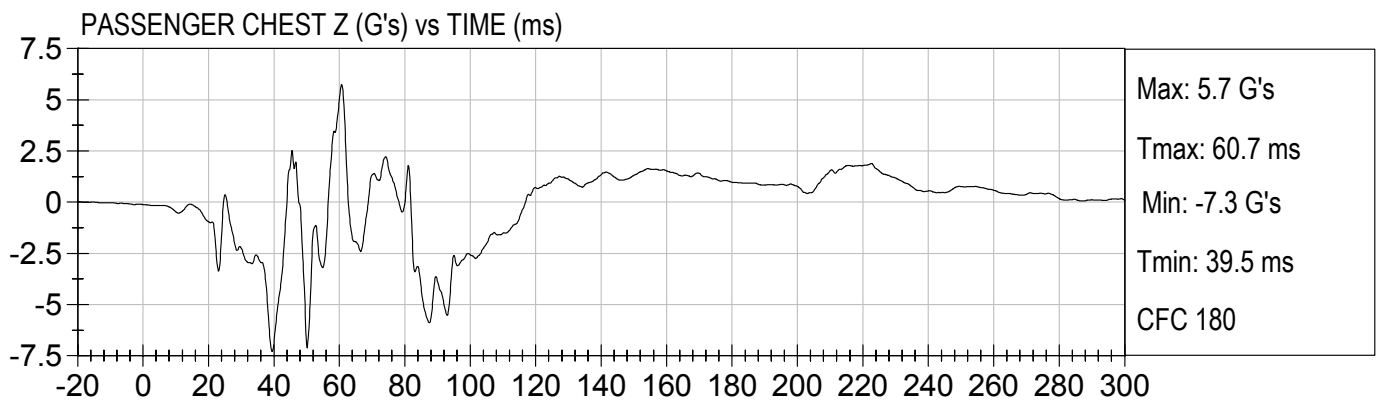
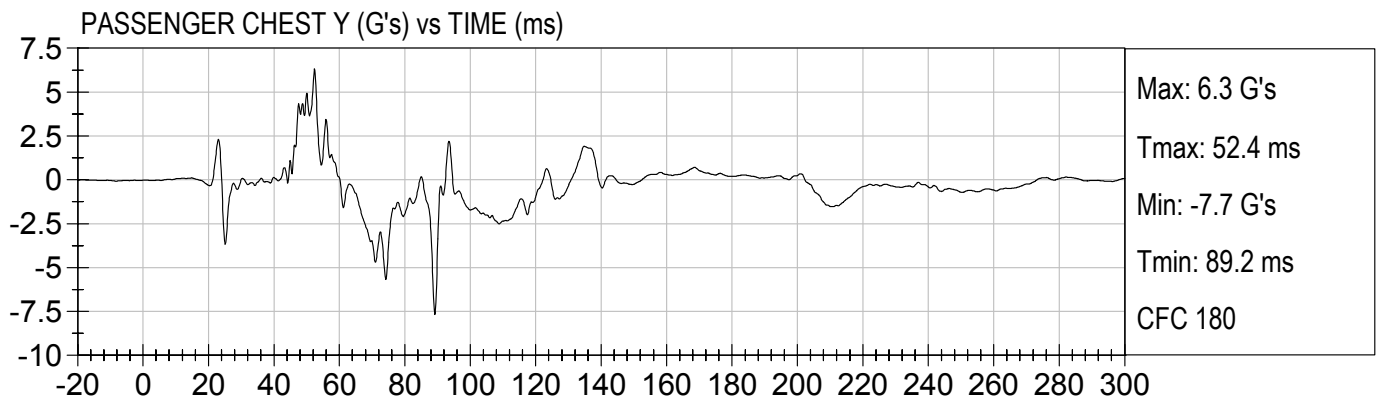
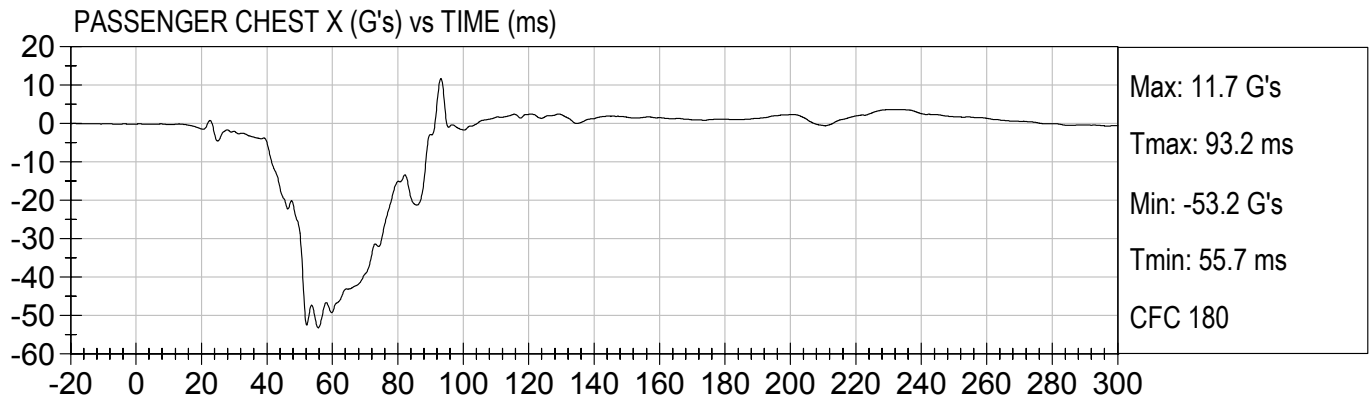
Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

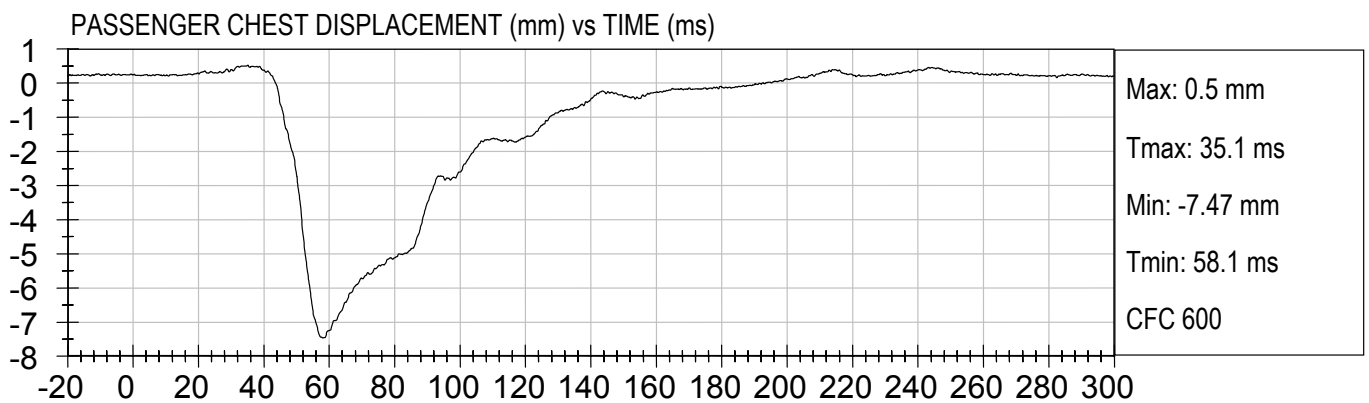
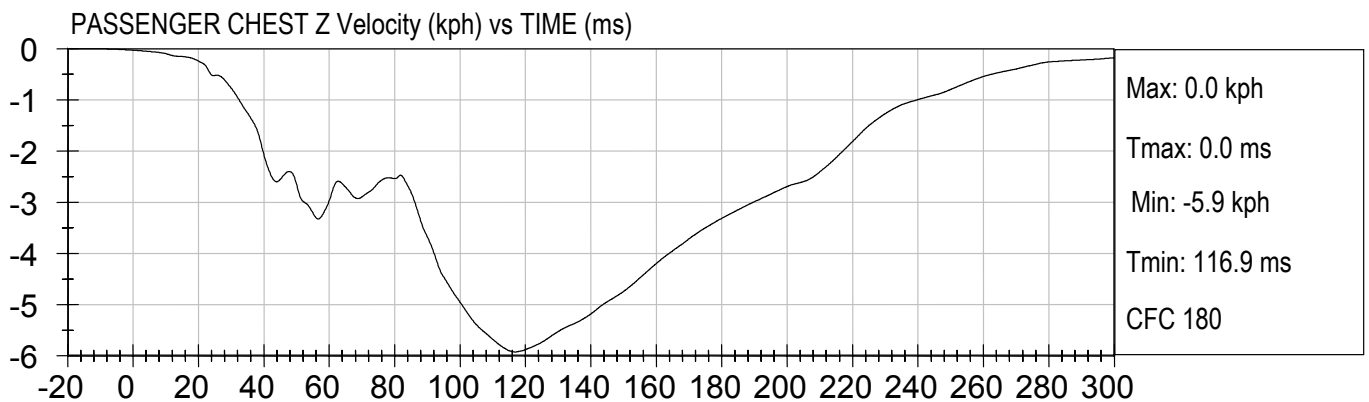
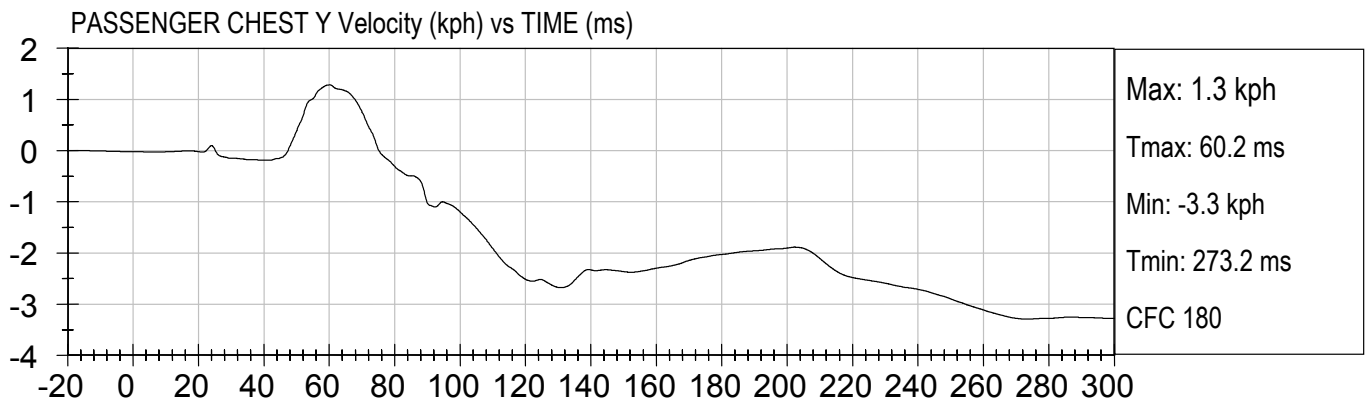
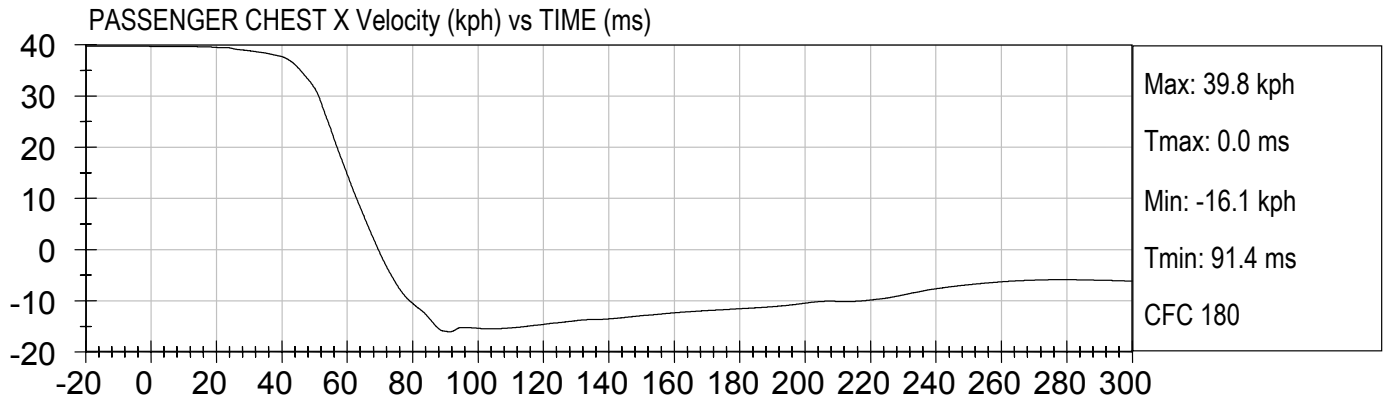
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Speed: 24.7 mph (39.8 km/h)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

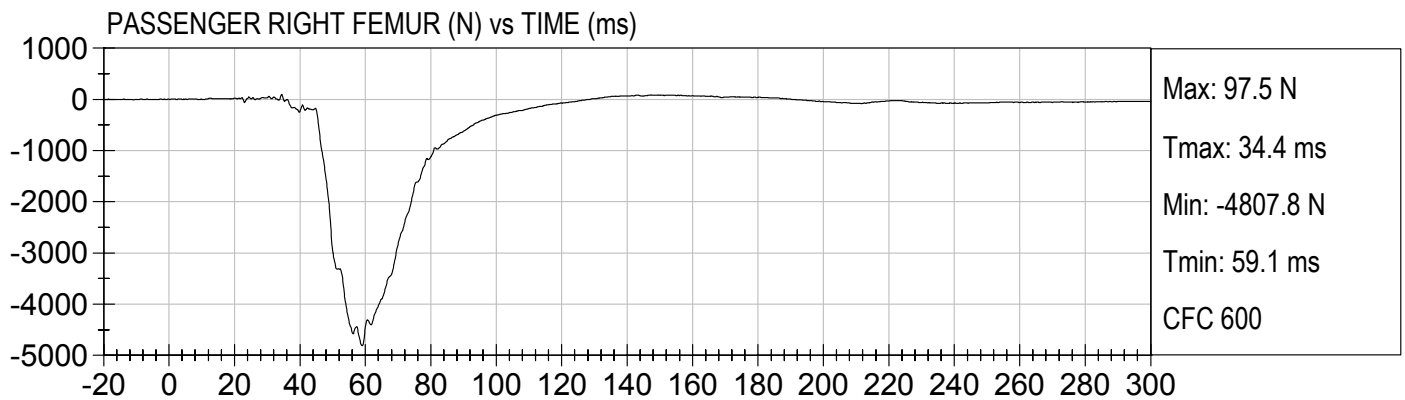
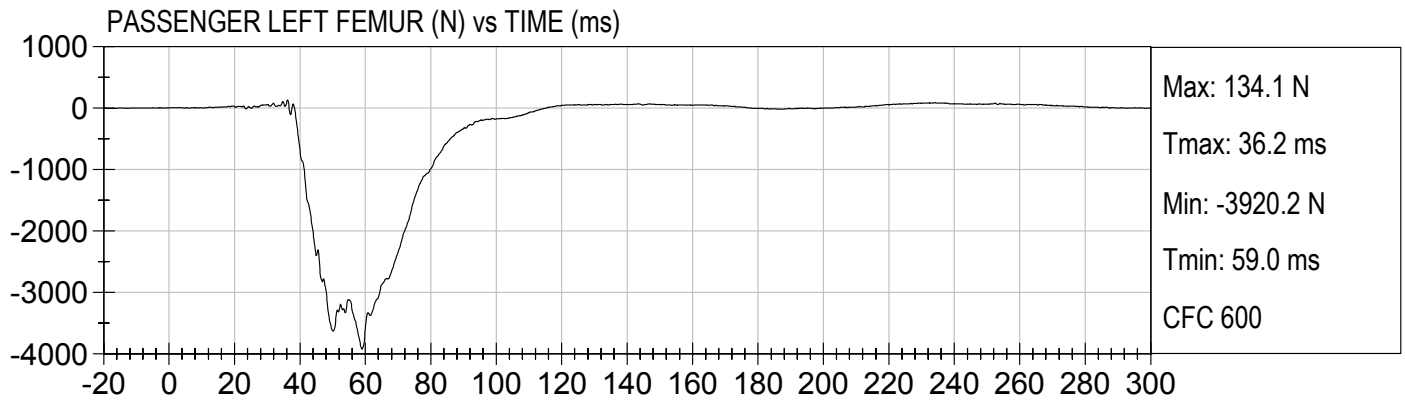
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Speed: 24.7 mph (39.8 km/h)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

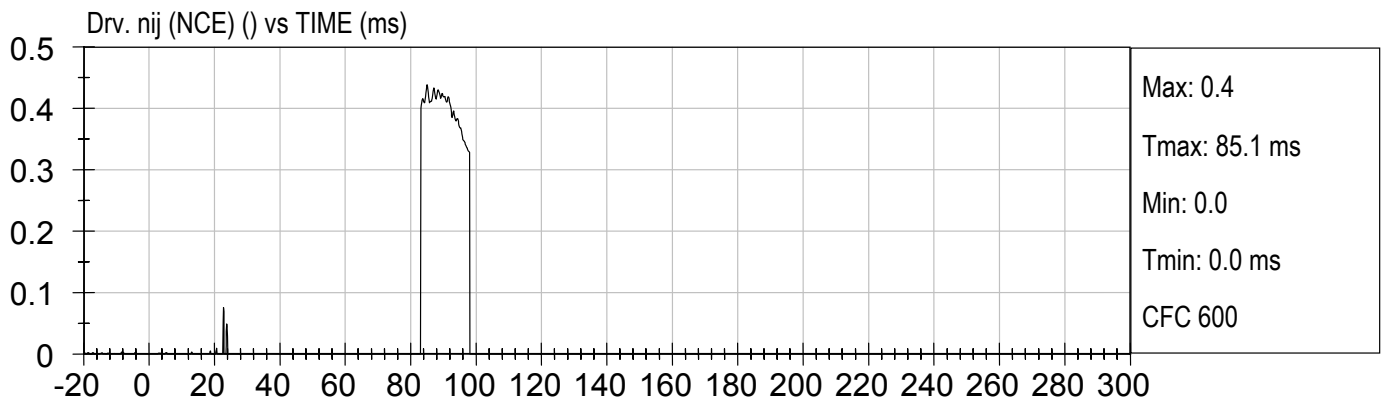
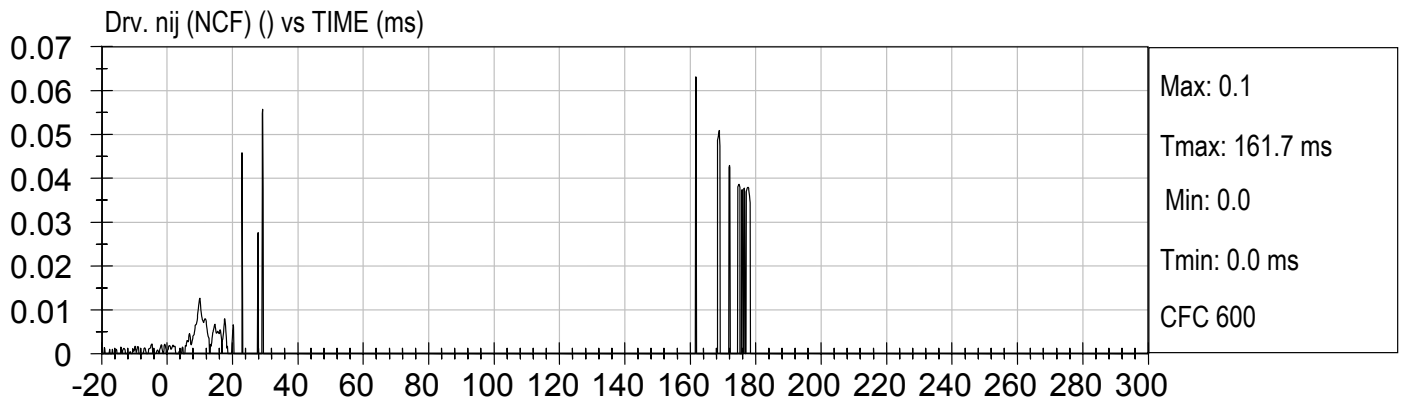
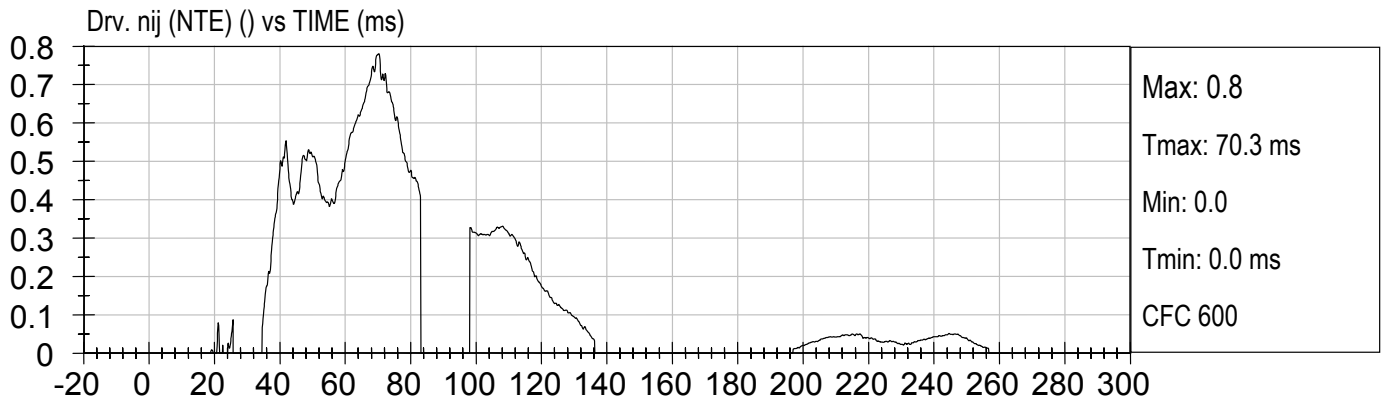
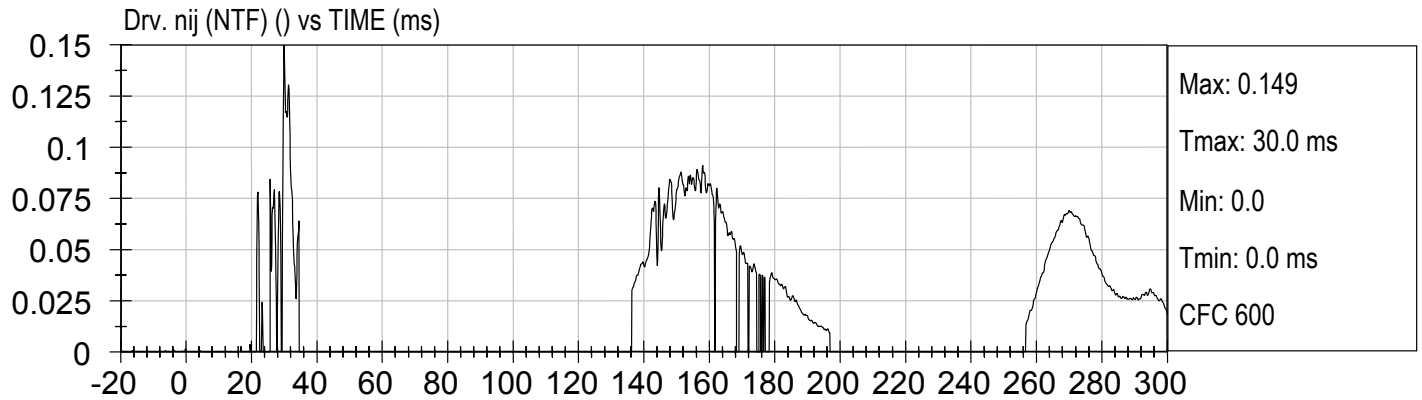
Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)





25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)

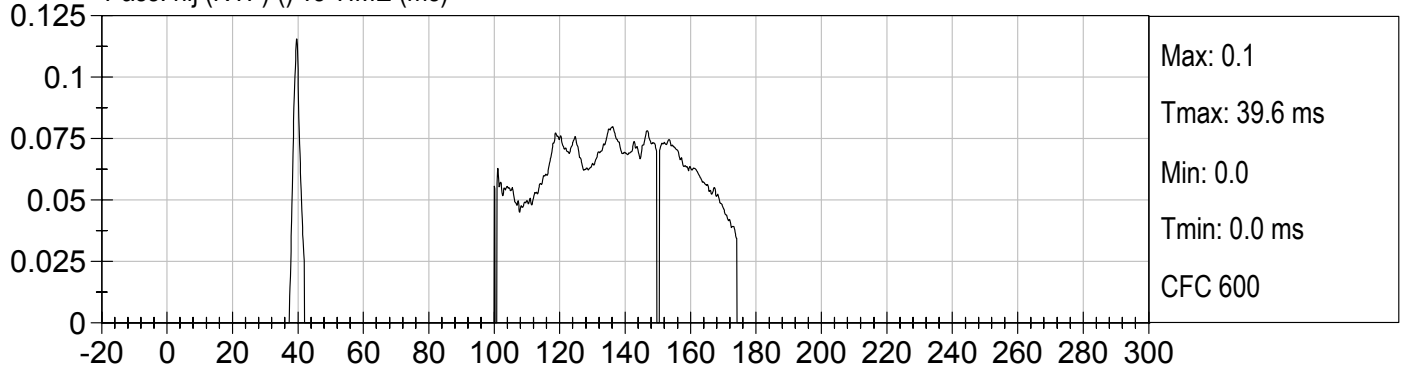




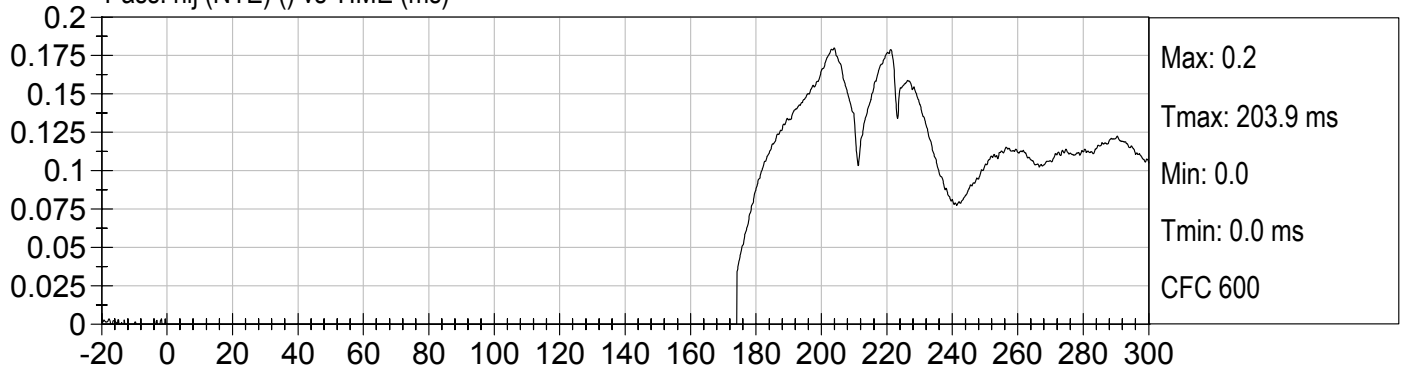
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2005 VOLVO S40 (C55901)

Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)

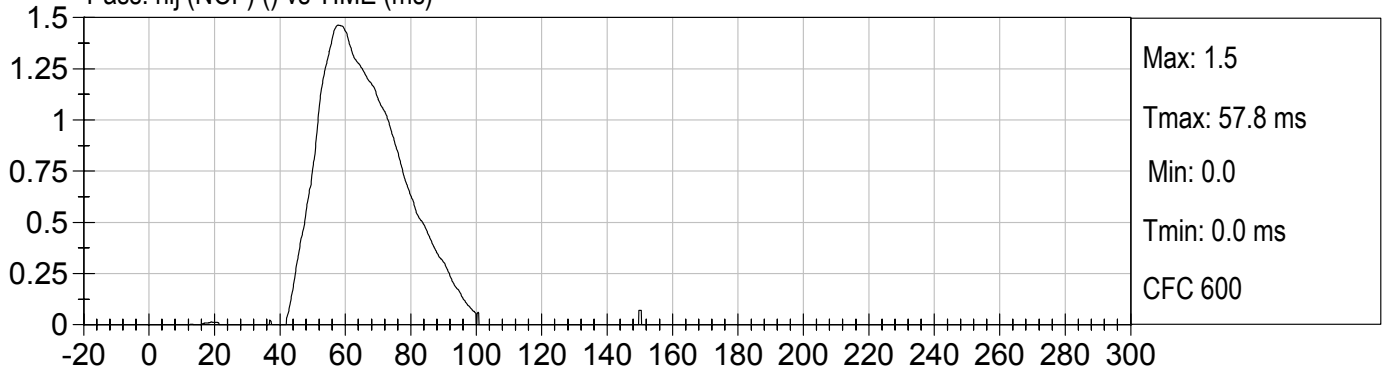
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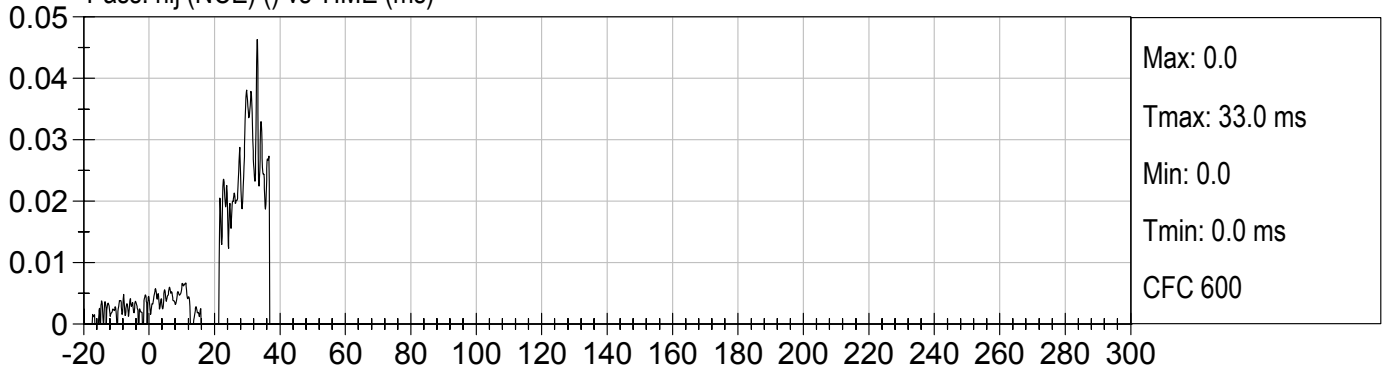
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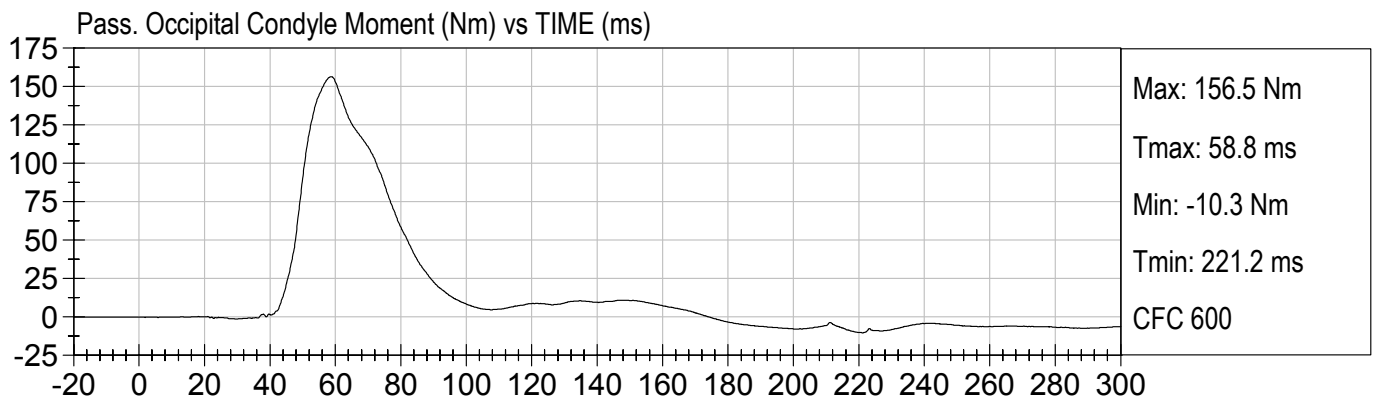
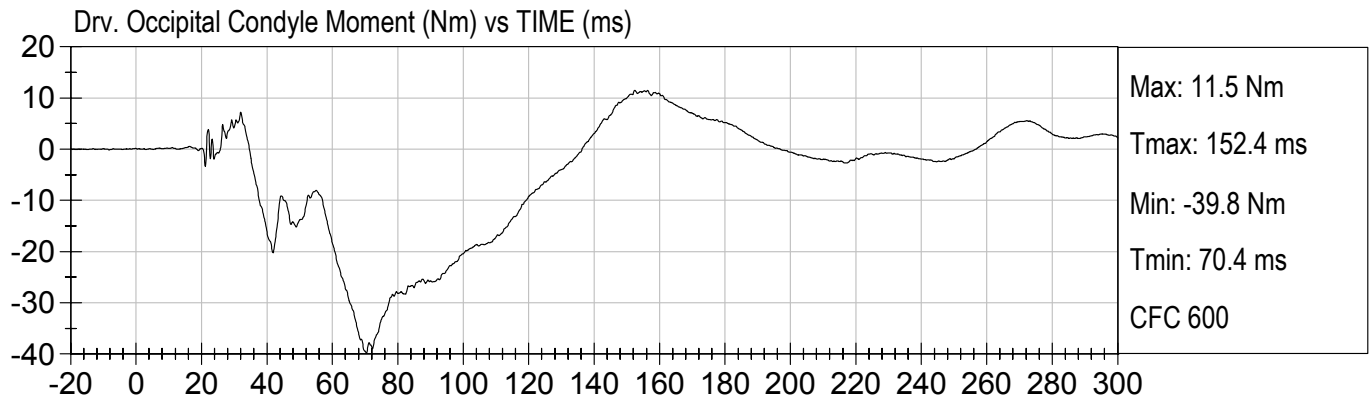
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25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

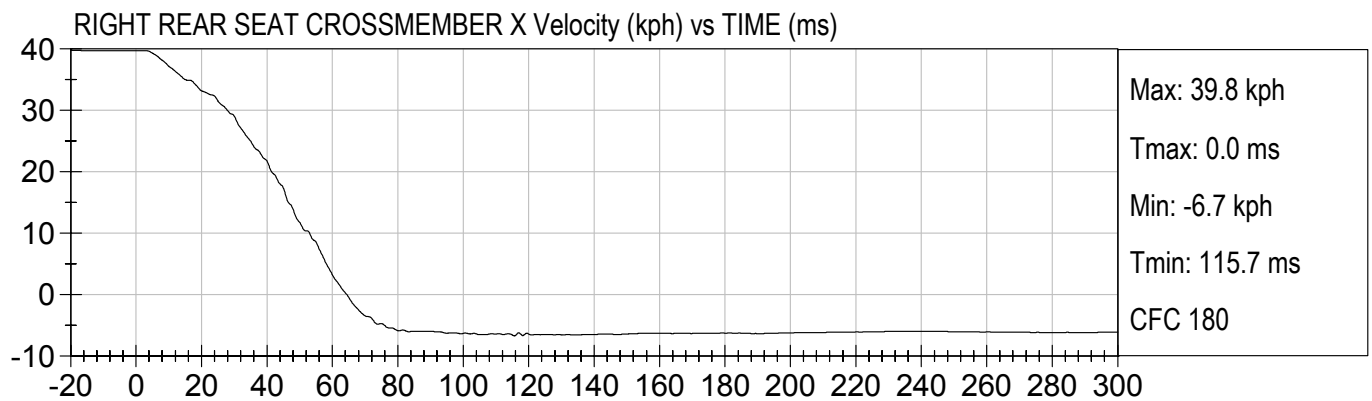
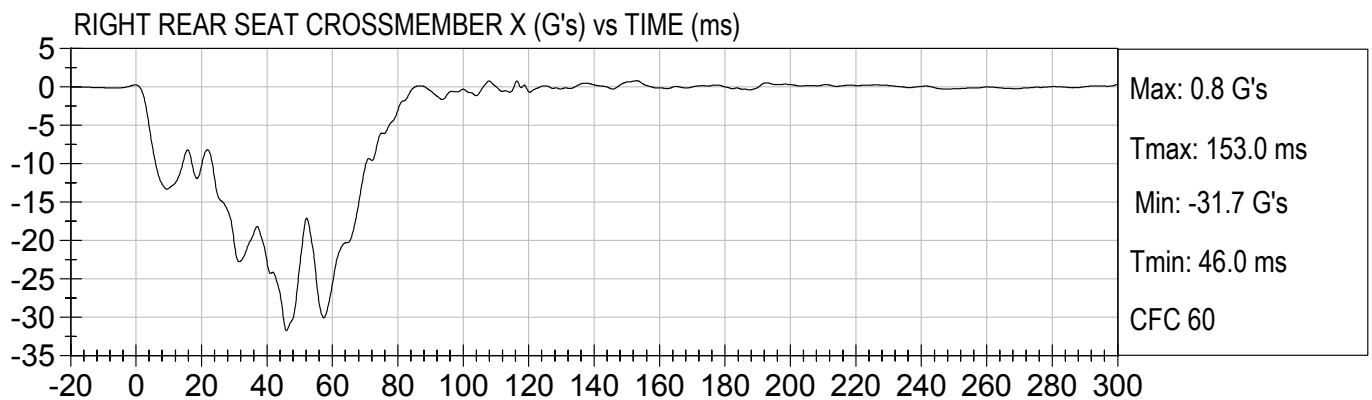
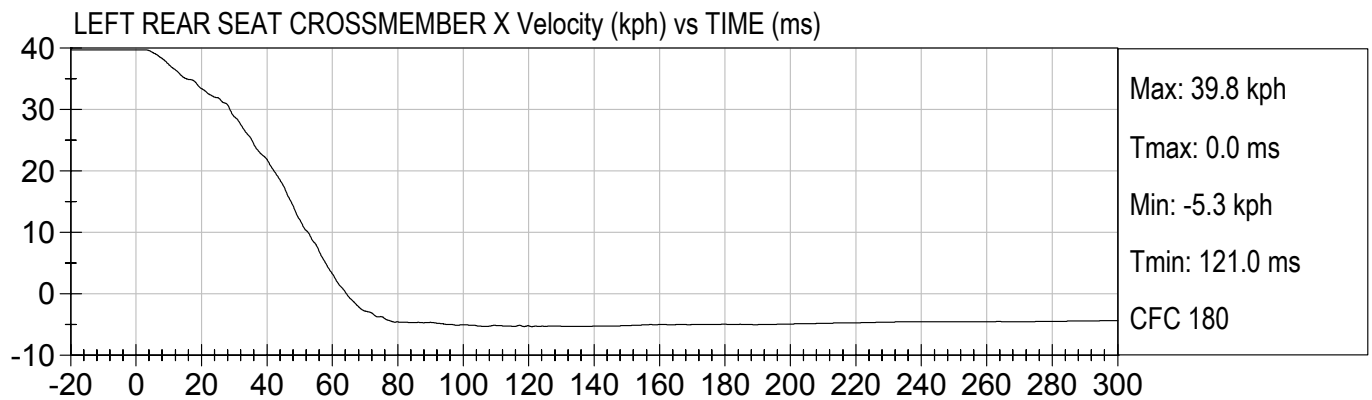
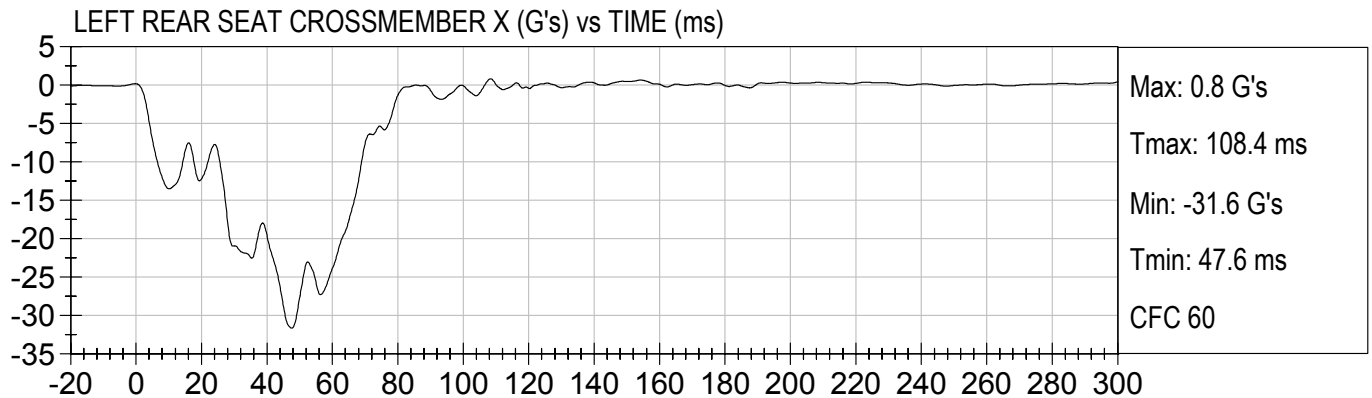
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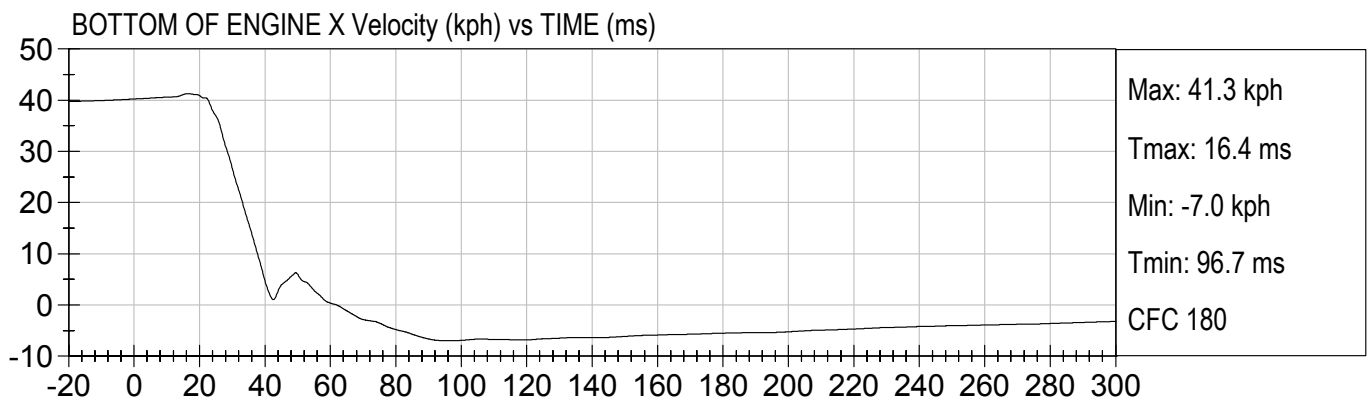
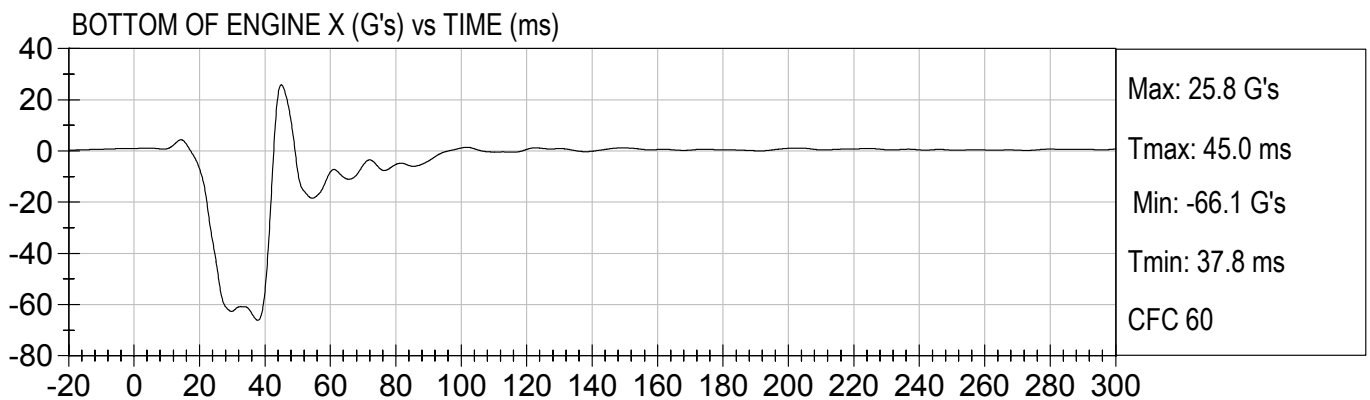
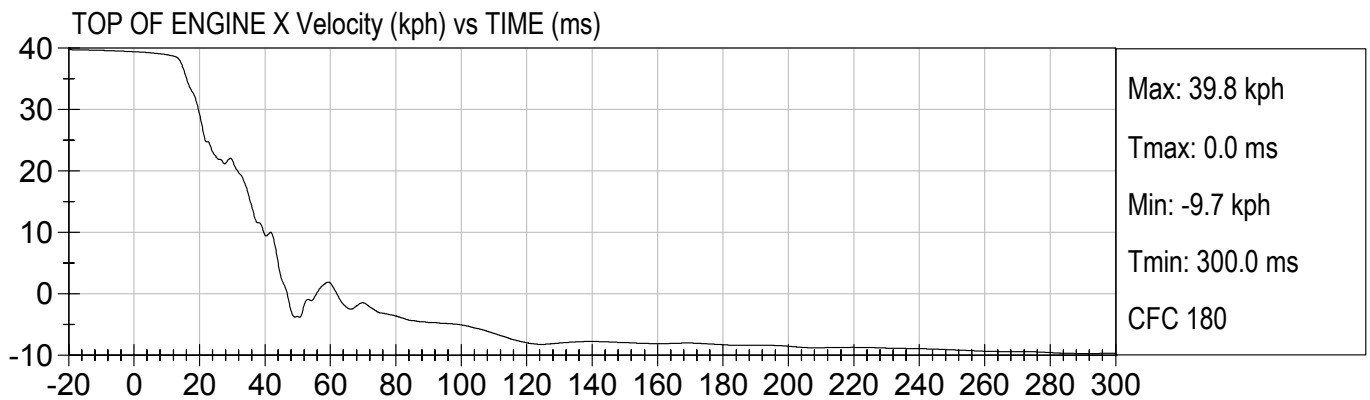
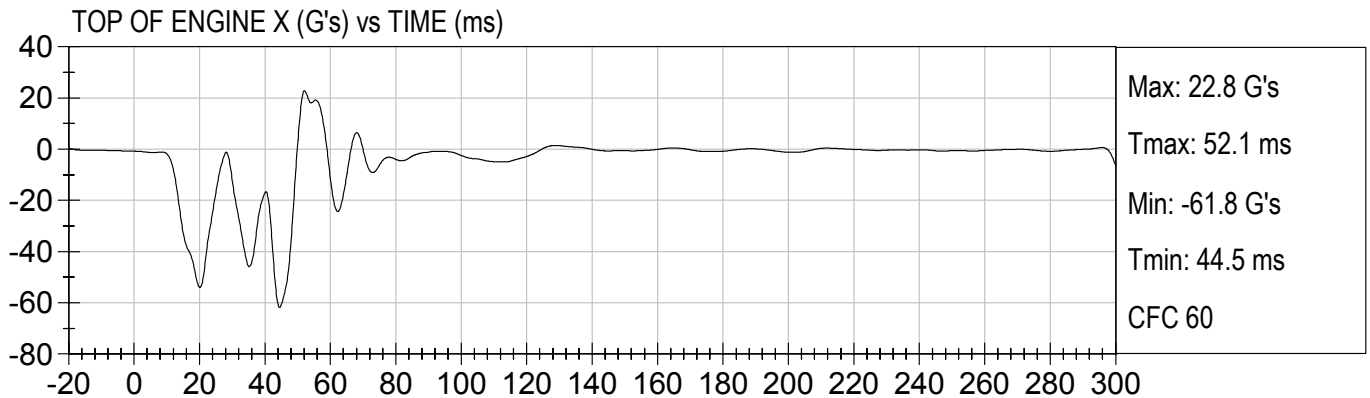




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2005 VOLVO S40 (C55901)

Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)

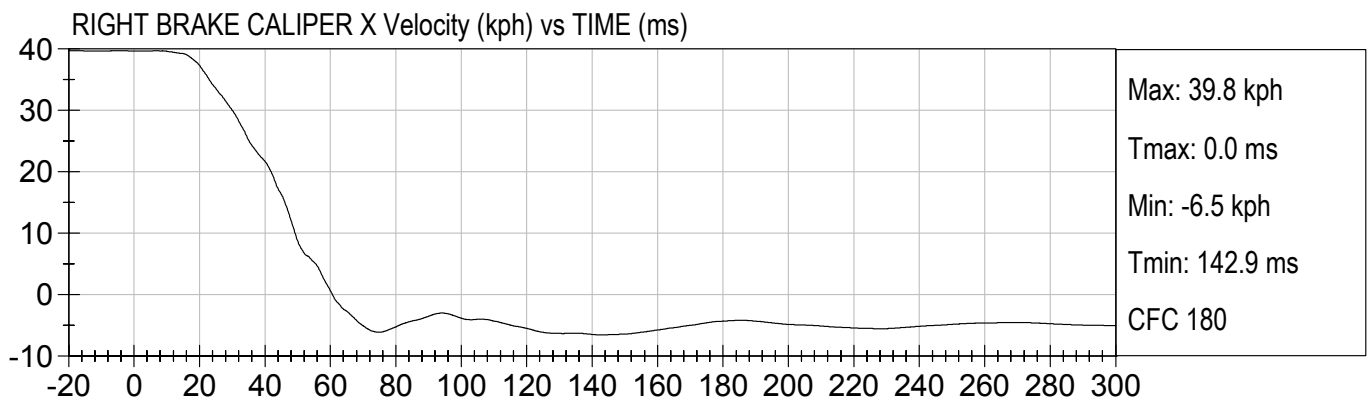
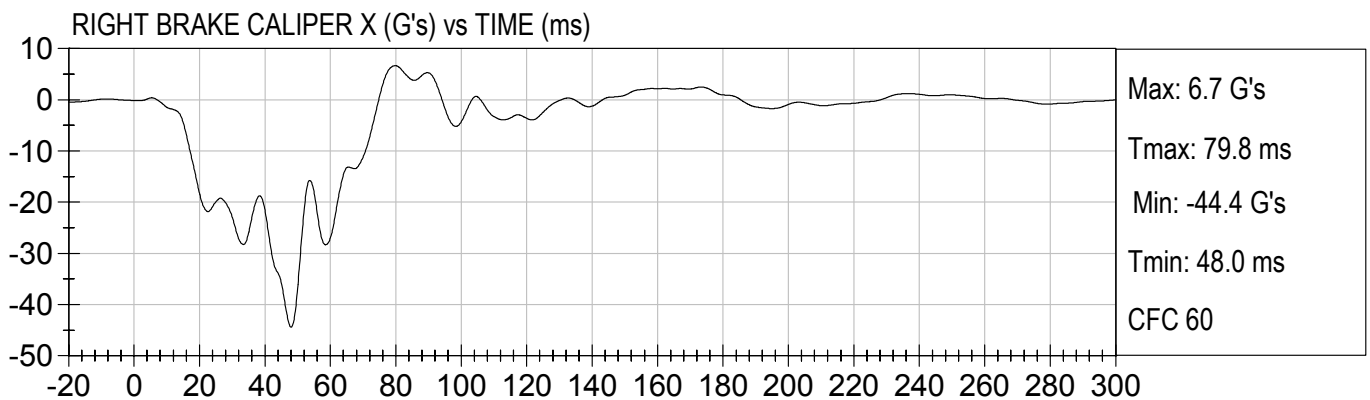
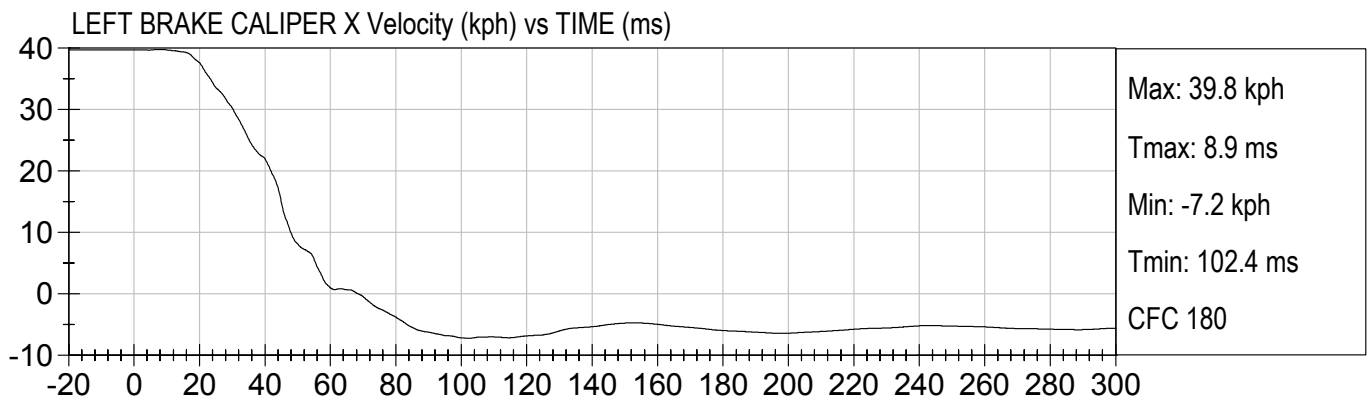
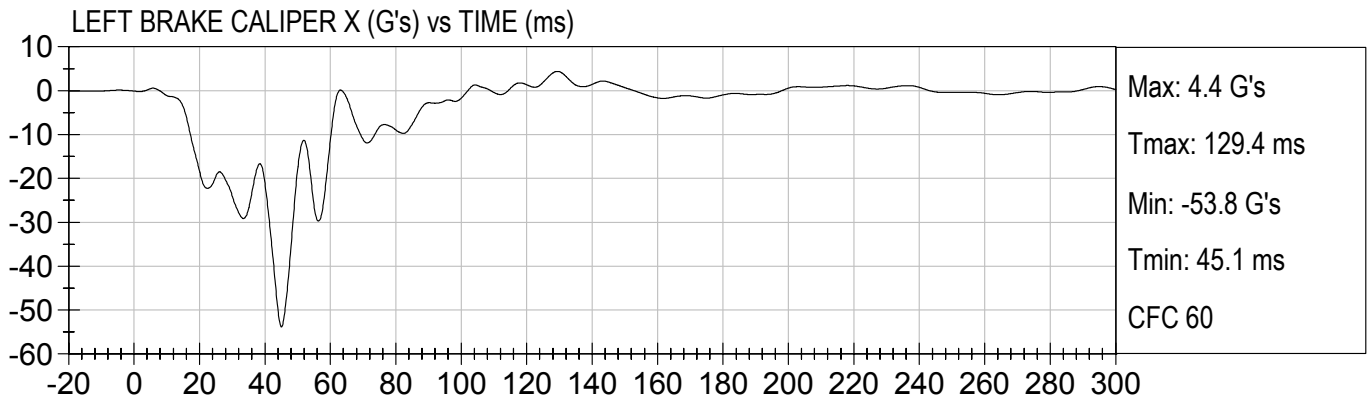






25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

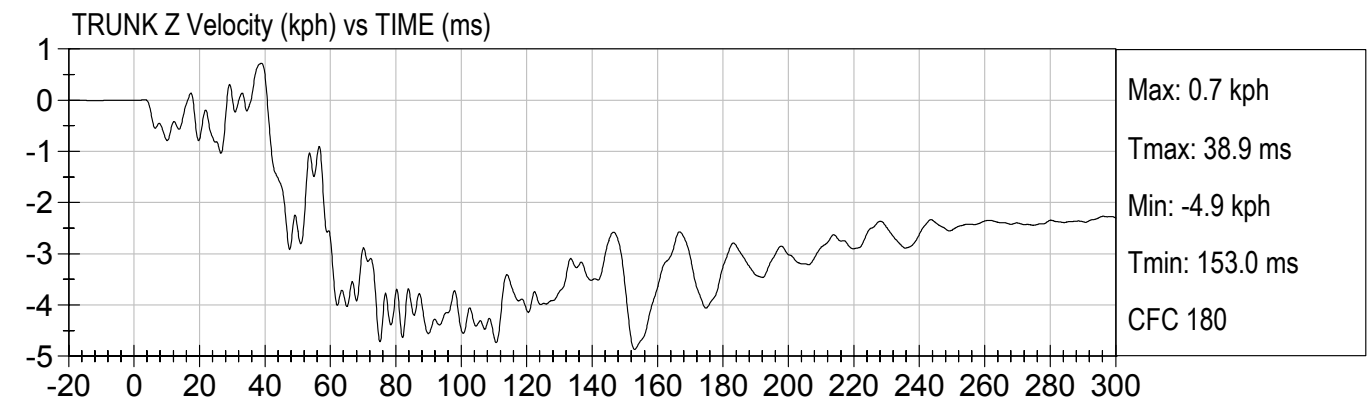
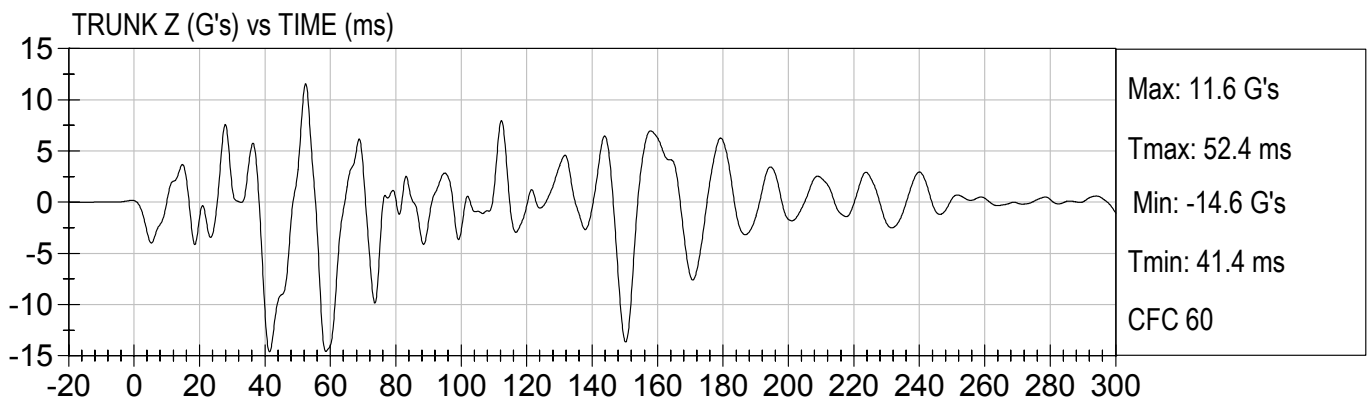
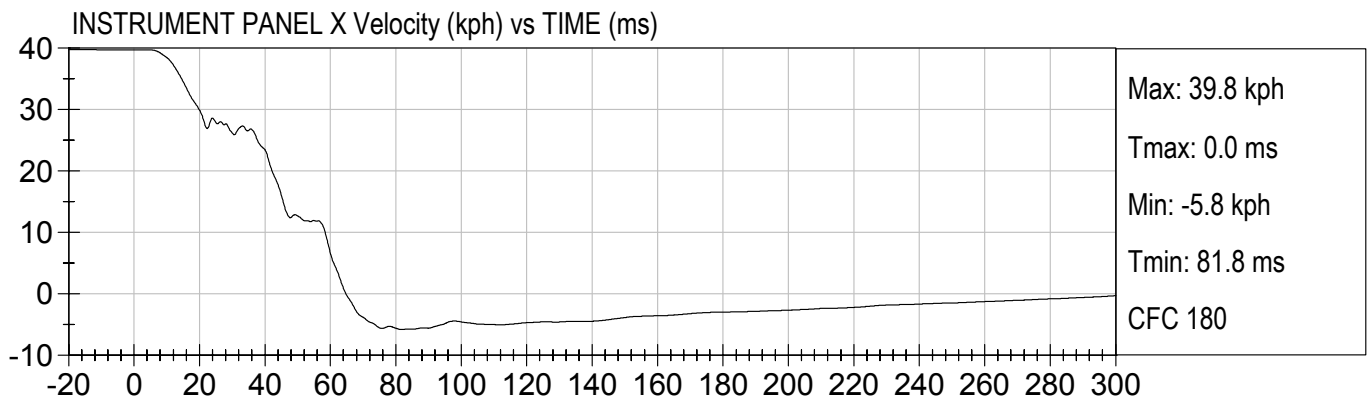
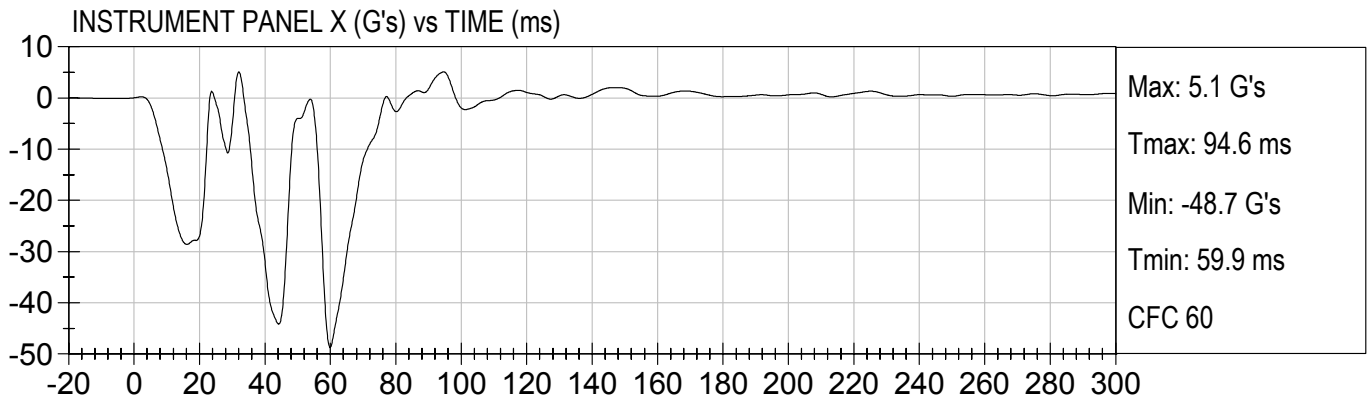
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25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

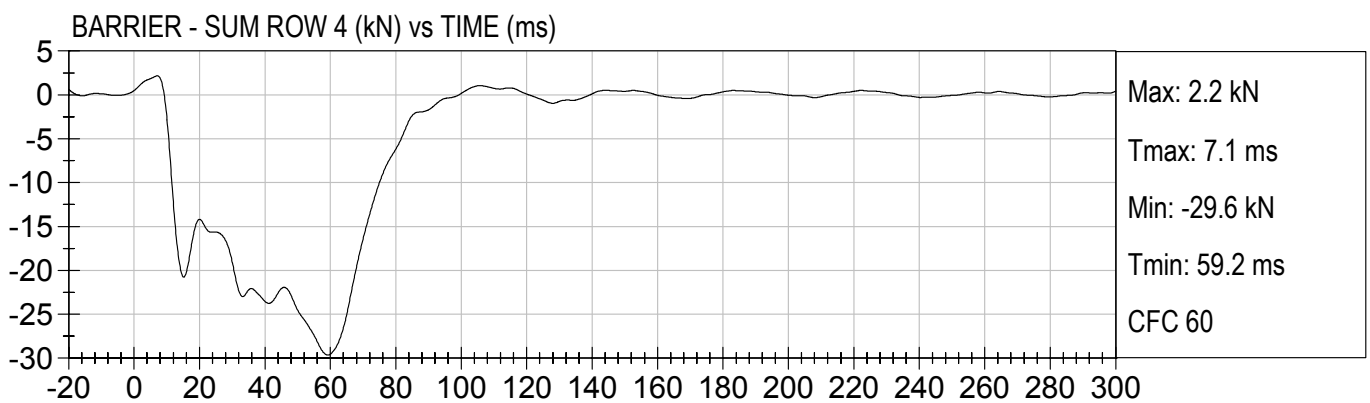
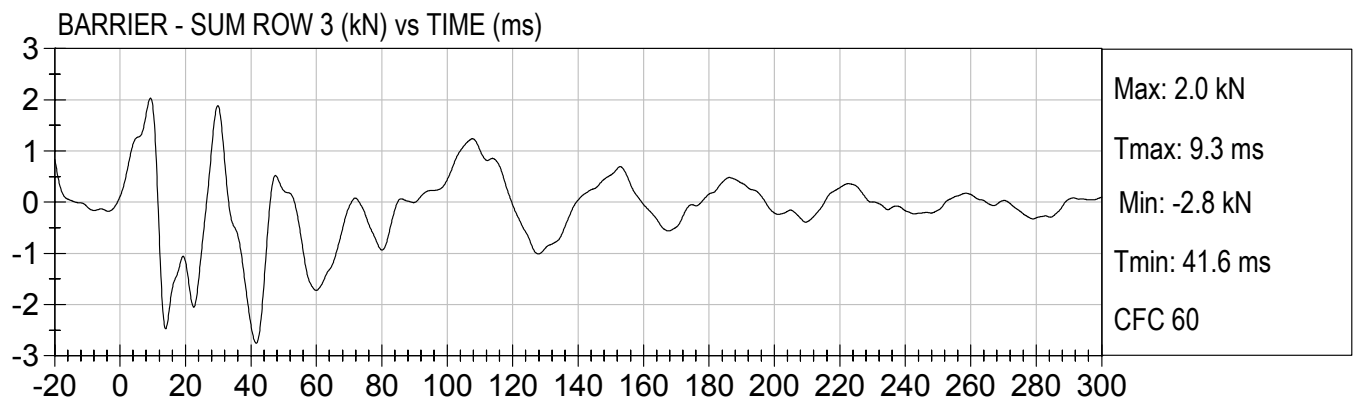
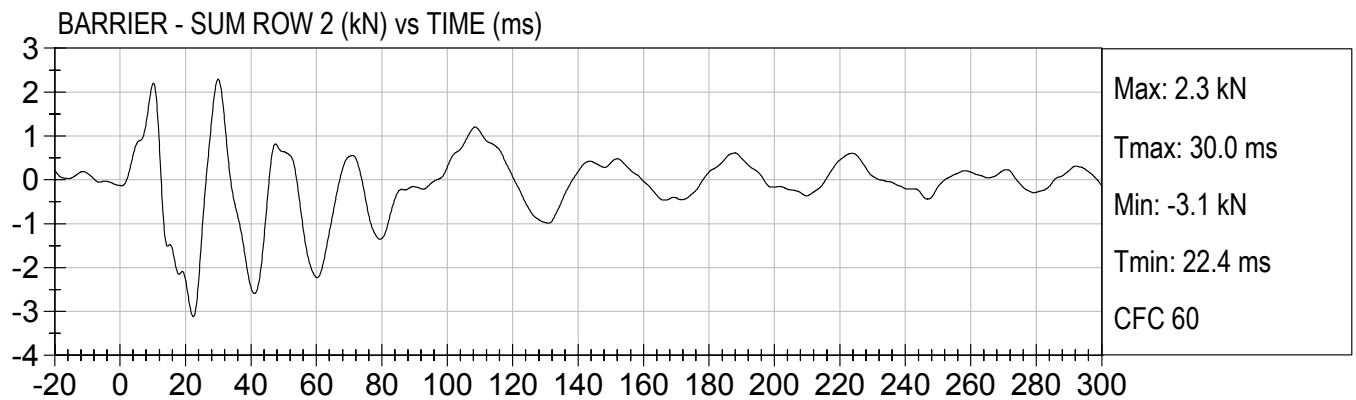
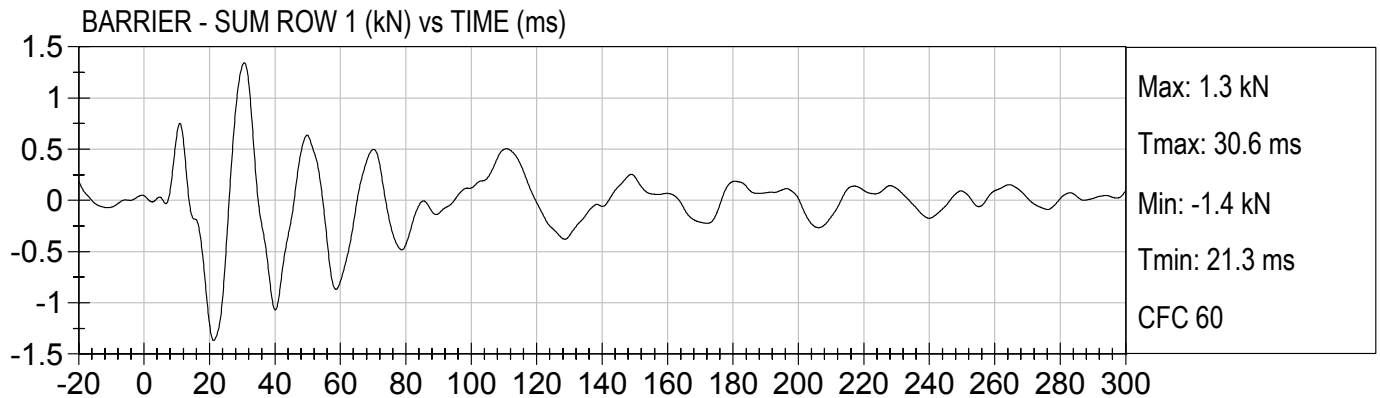
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Speed: 24.7 mph (39.8 km/h)





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2005 VOLVO S40 (C55901)

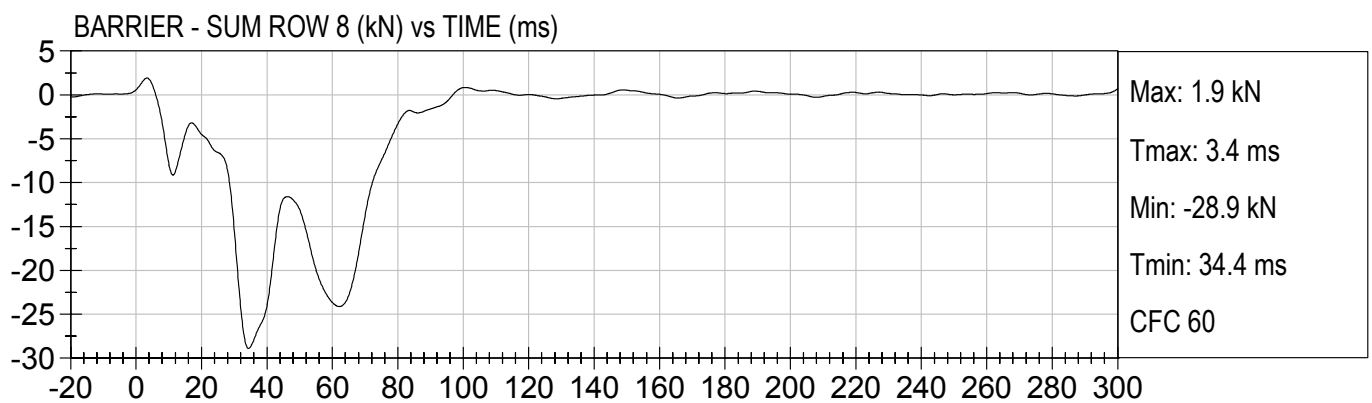
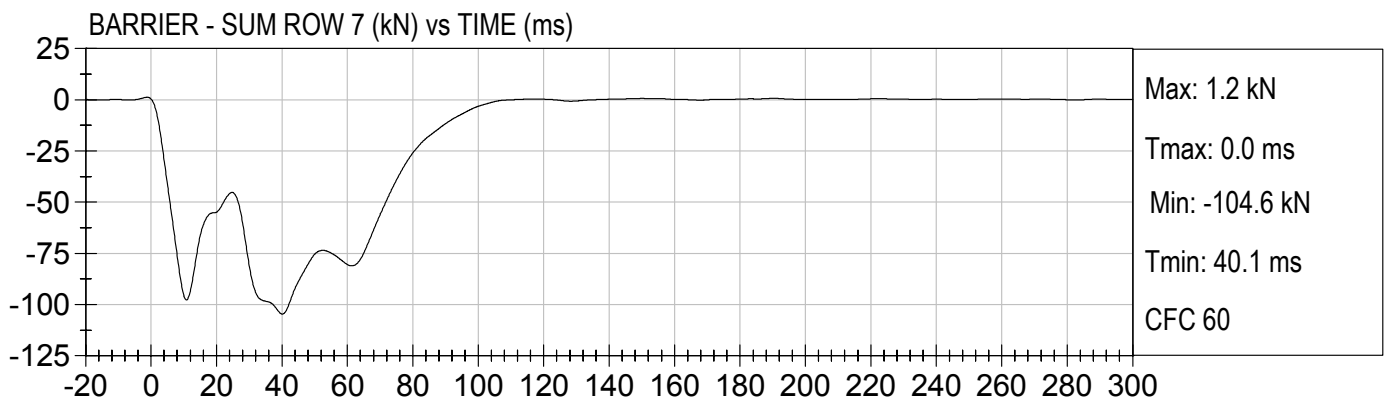
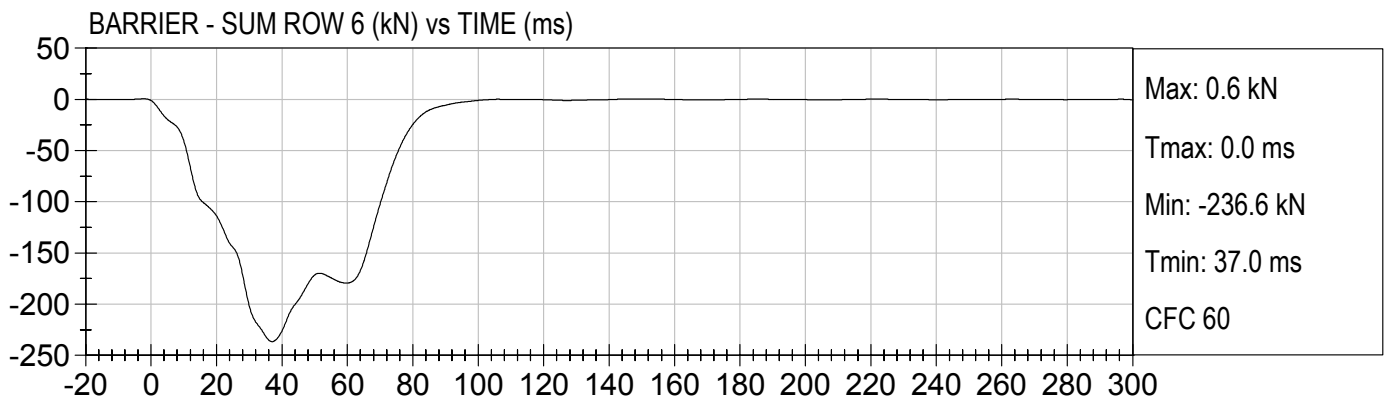
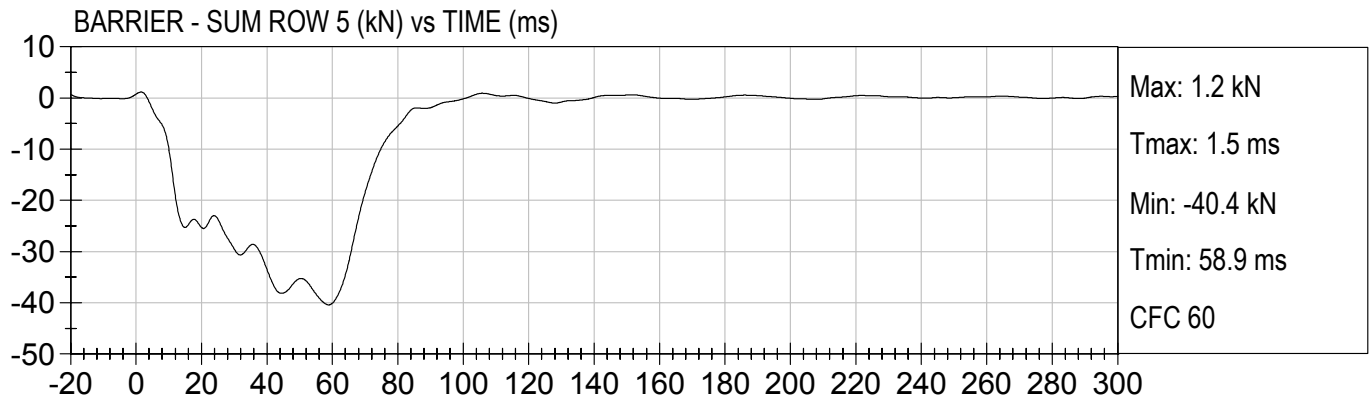
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25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

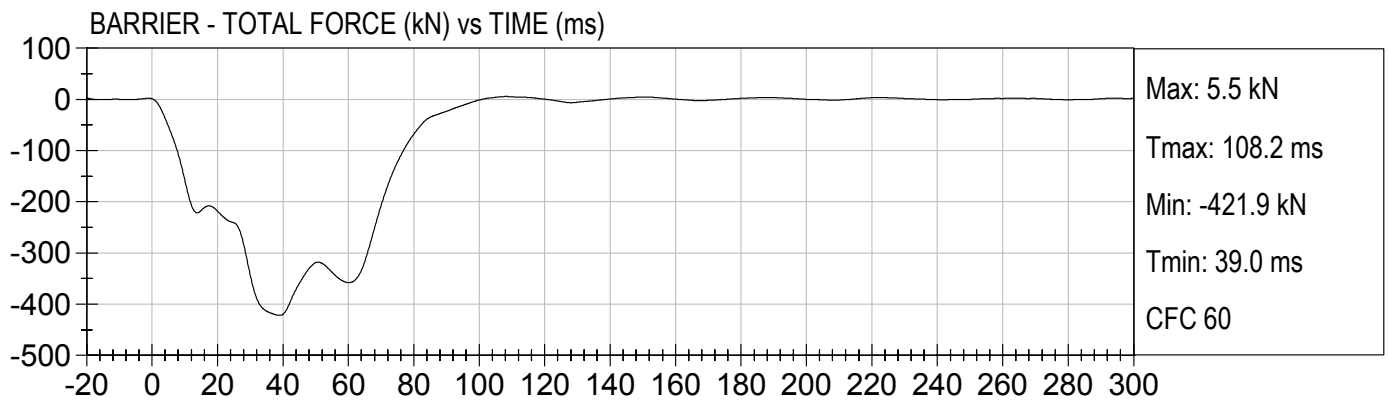
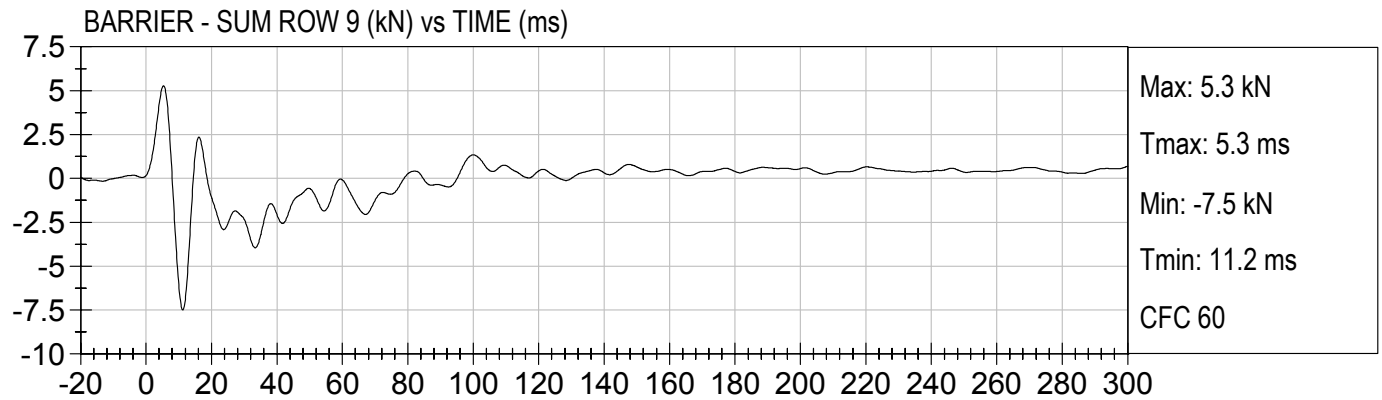
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Speed: 24.7 mph (39.8 km/h)





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2005 VOLVO S40 (C55901)

Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)

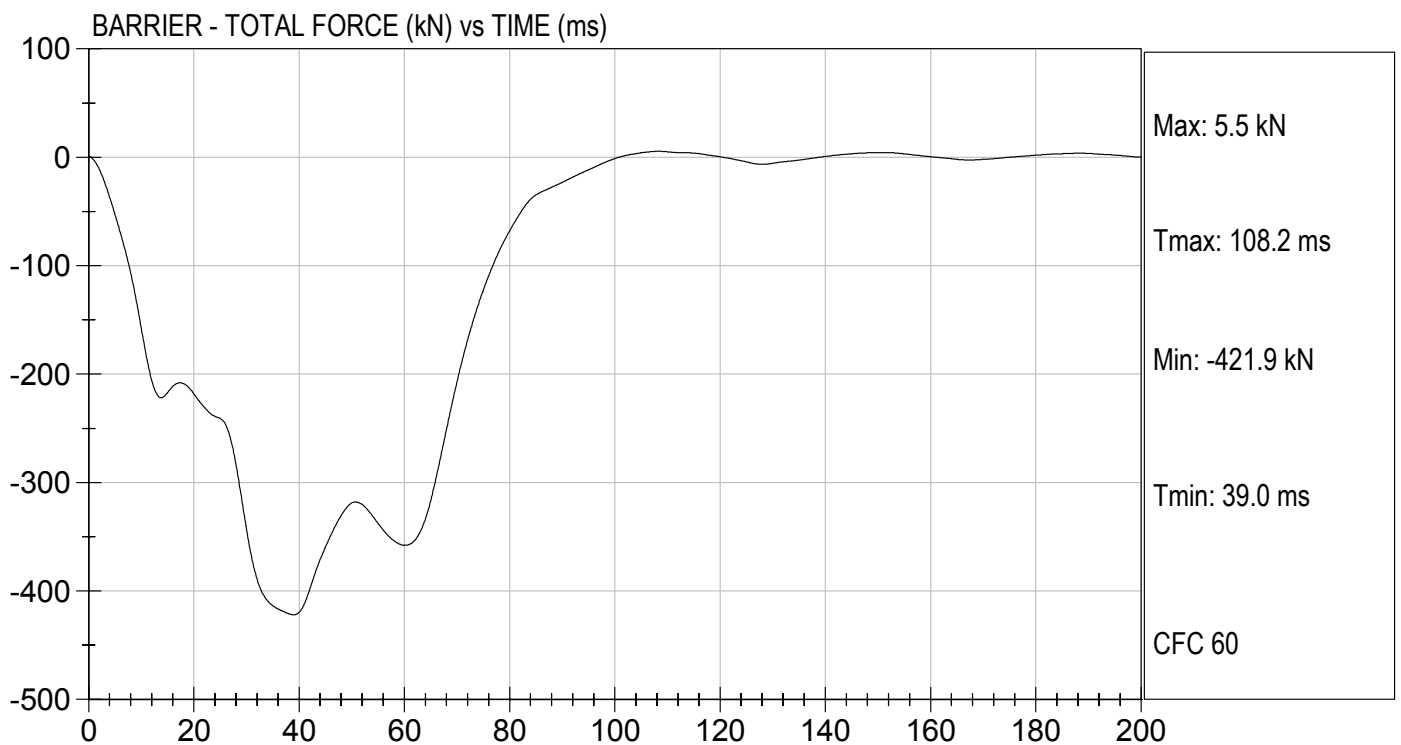
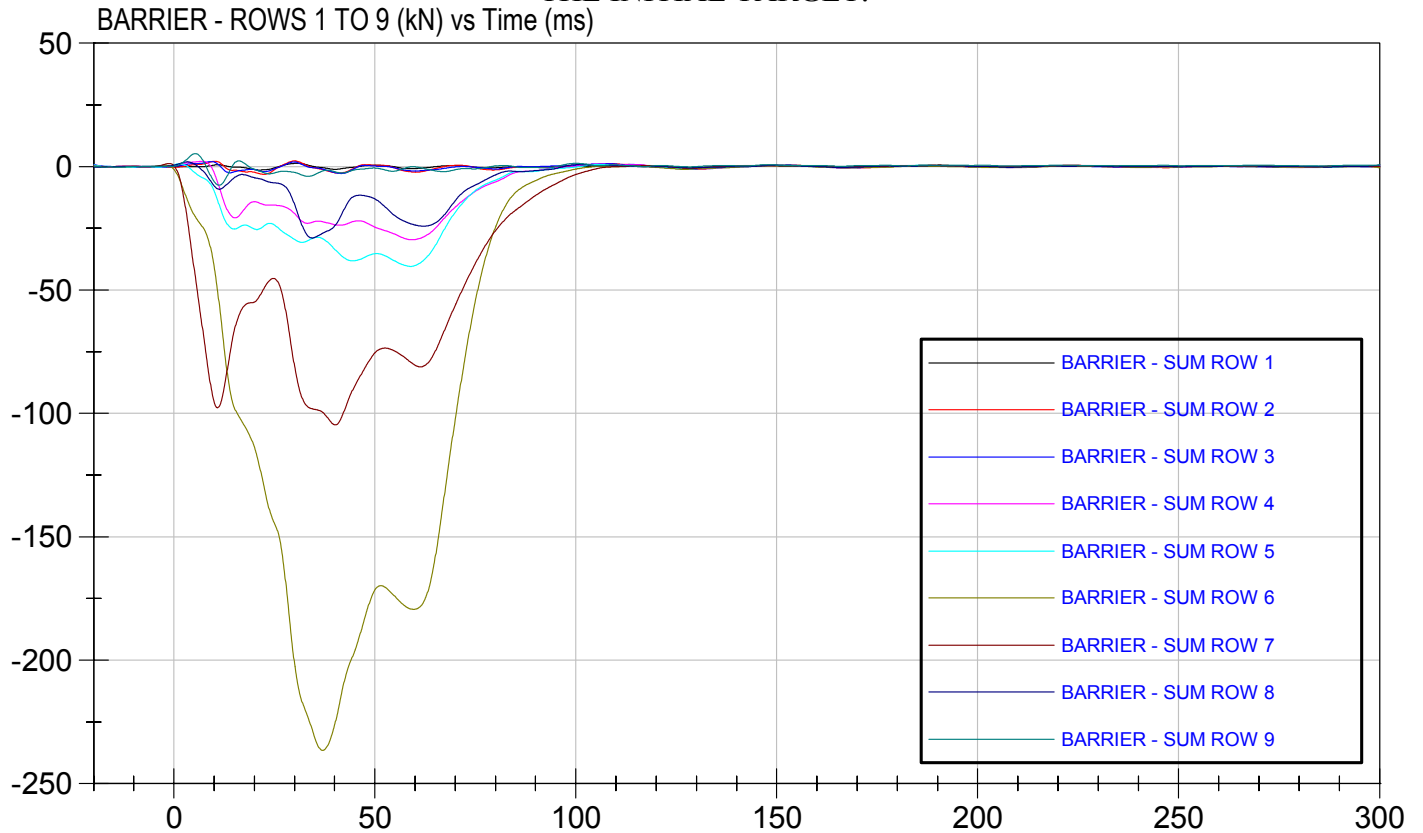




25MPH FRONTAL UNBELTED
2005 VOLVO S40 (C55901)

Test Date: 07/21/05
Speed: 24.7 mph (39.8 km/h)

THE VEHICLE IMPACTED THE BARRIER 8mm HIGHER THAN
THE INITIAL TARGET.



APPENDIX B
LOW RISK TEST DATA

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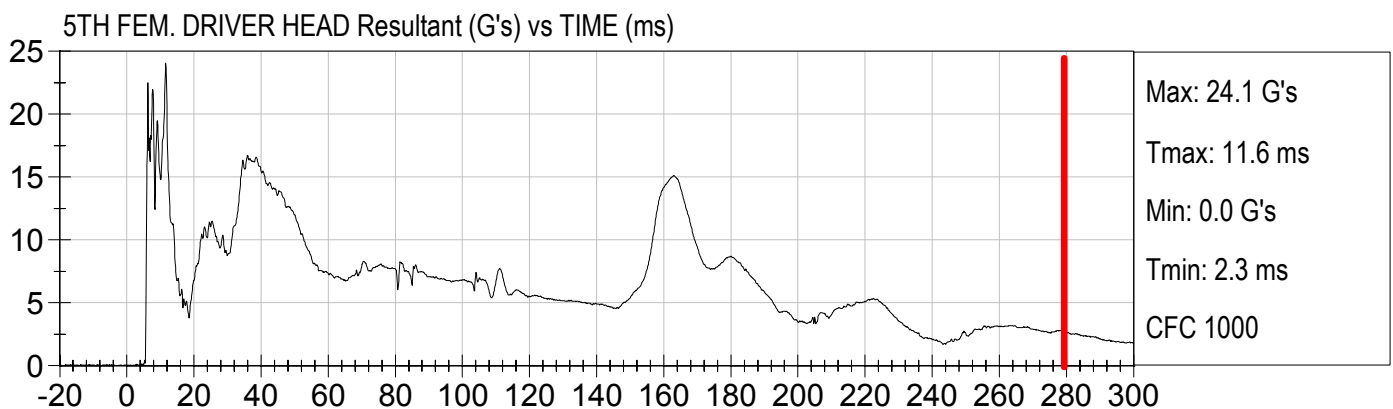
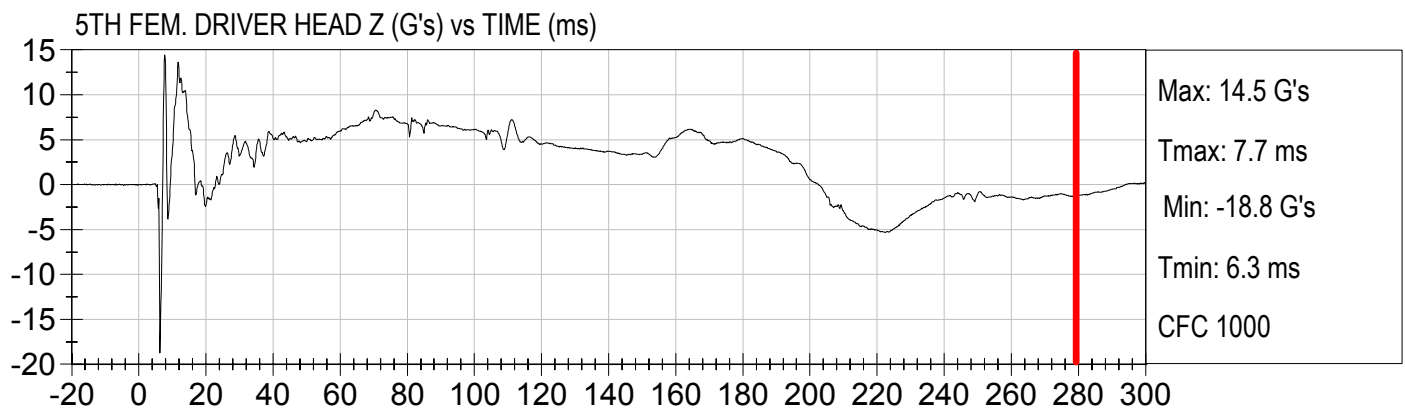
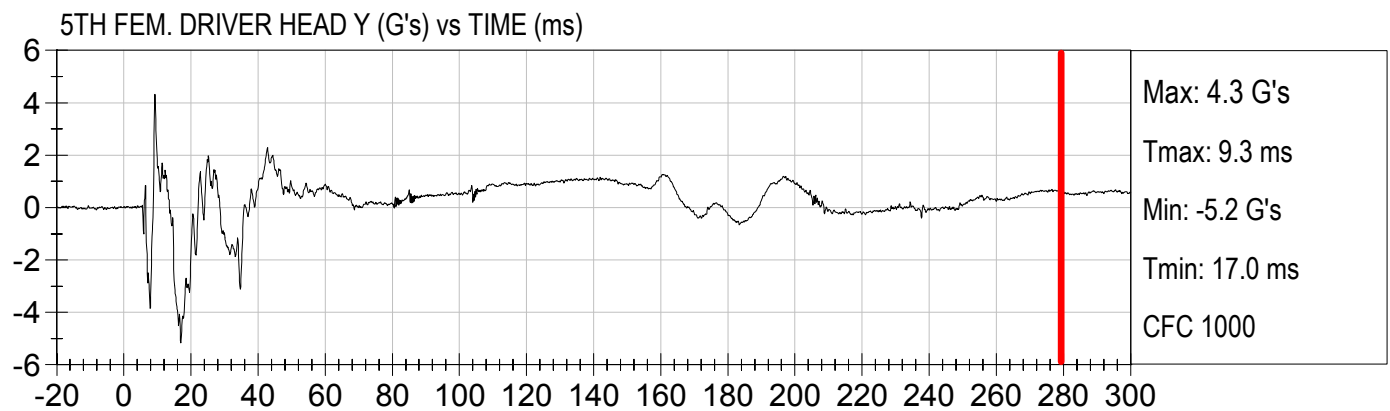
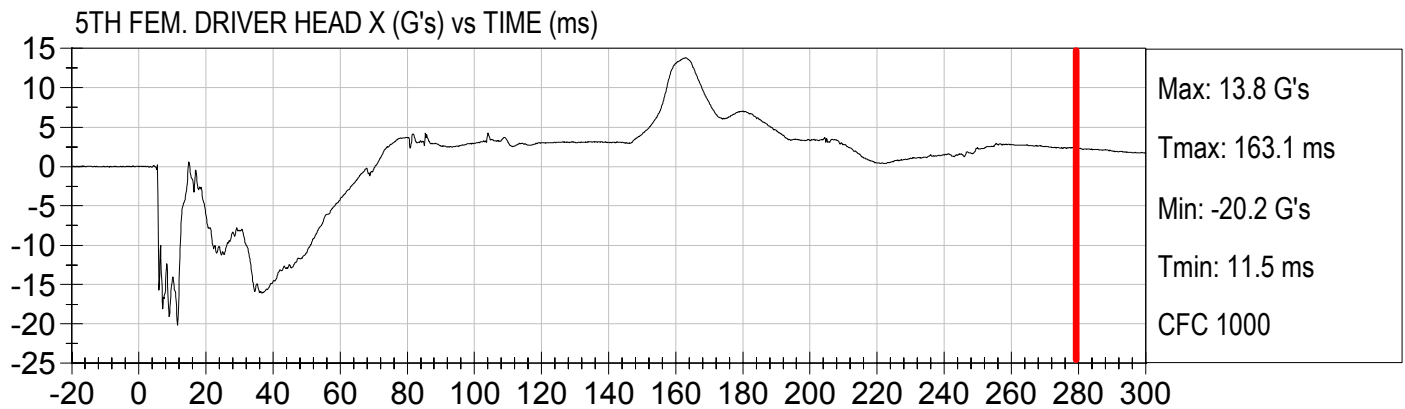
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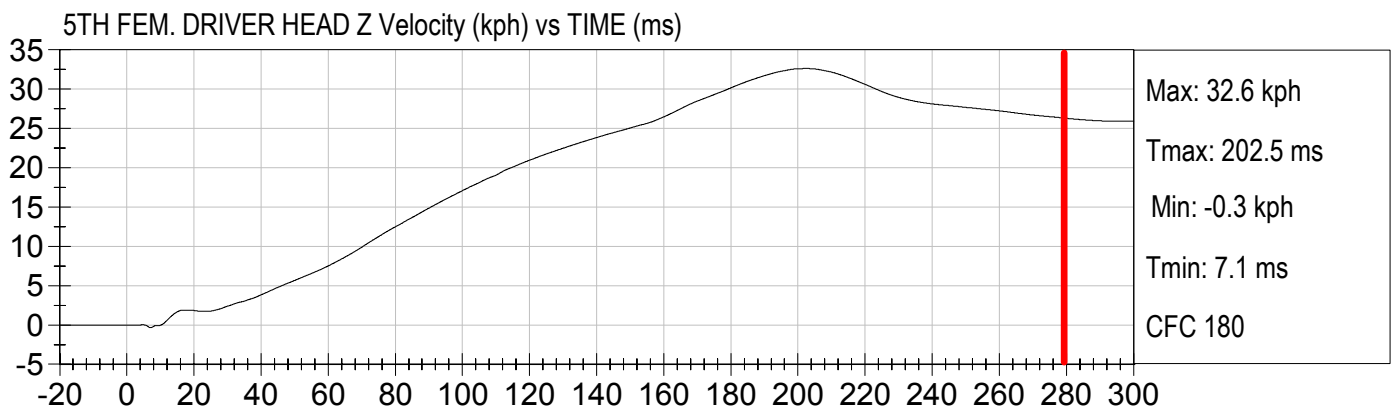
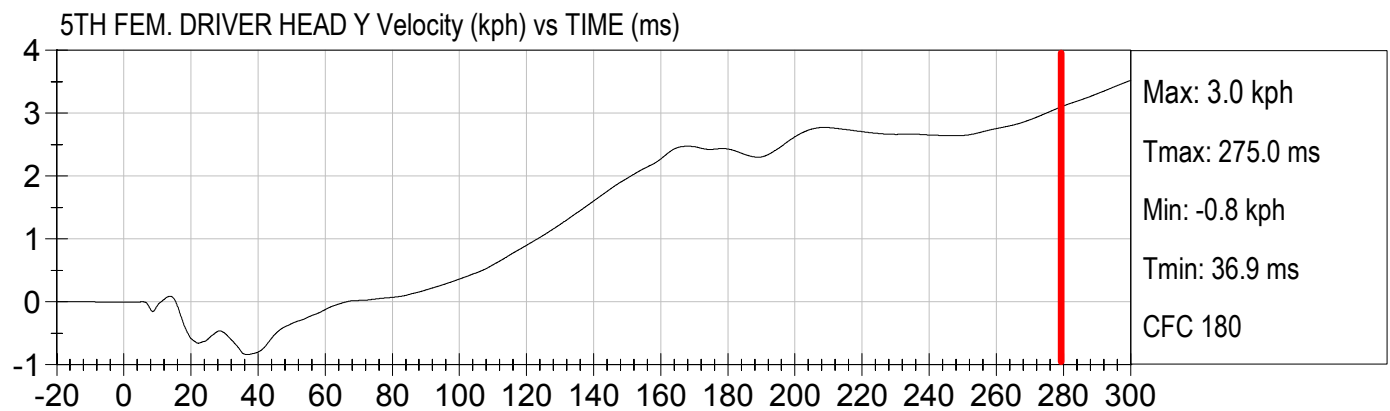
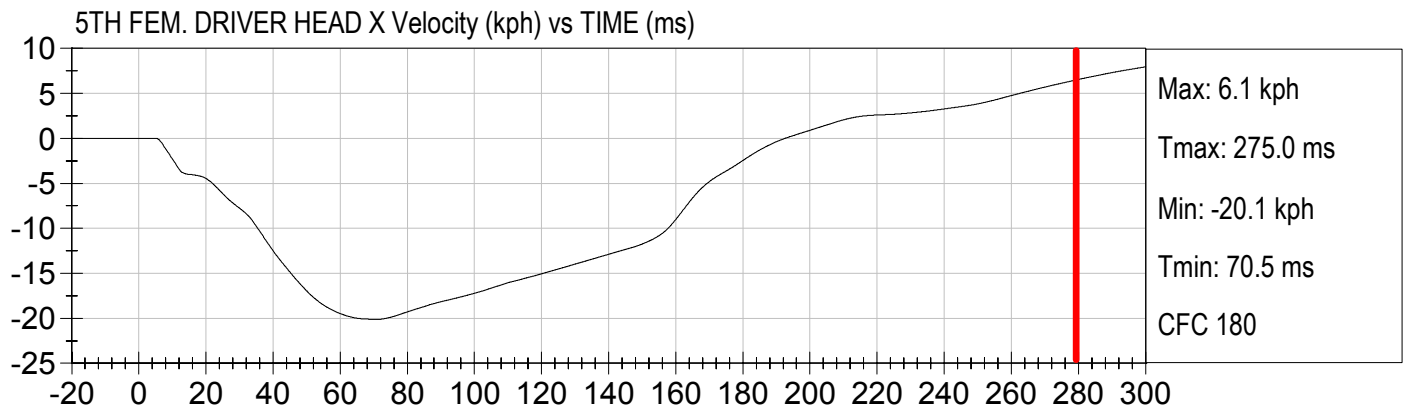


Injury Values Calculated between 0ms and 275ms



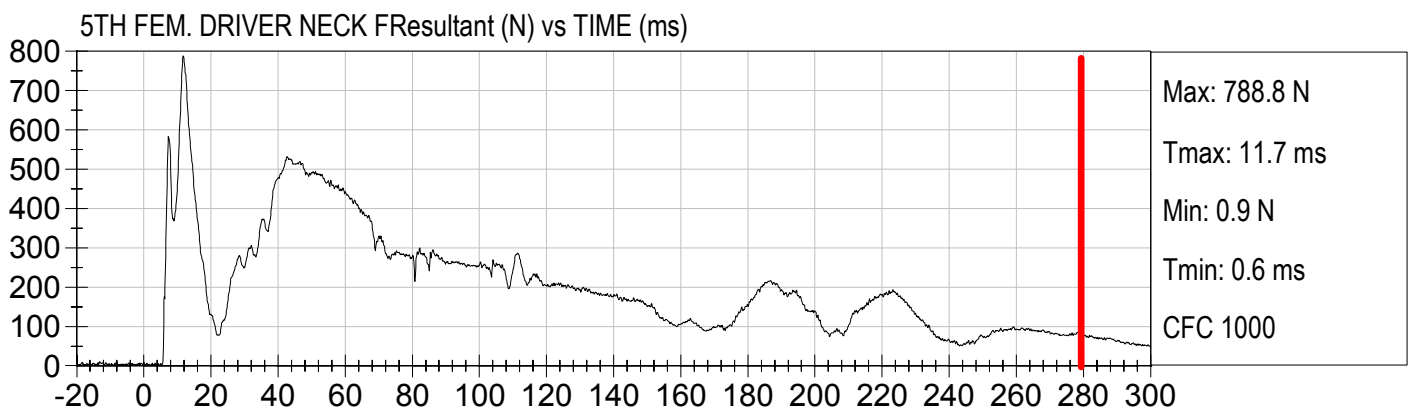
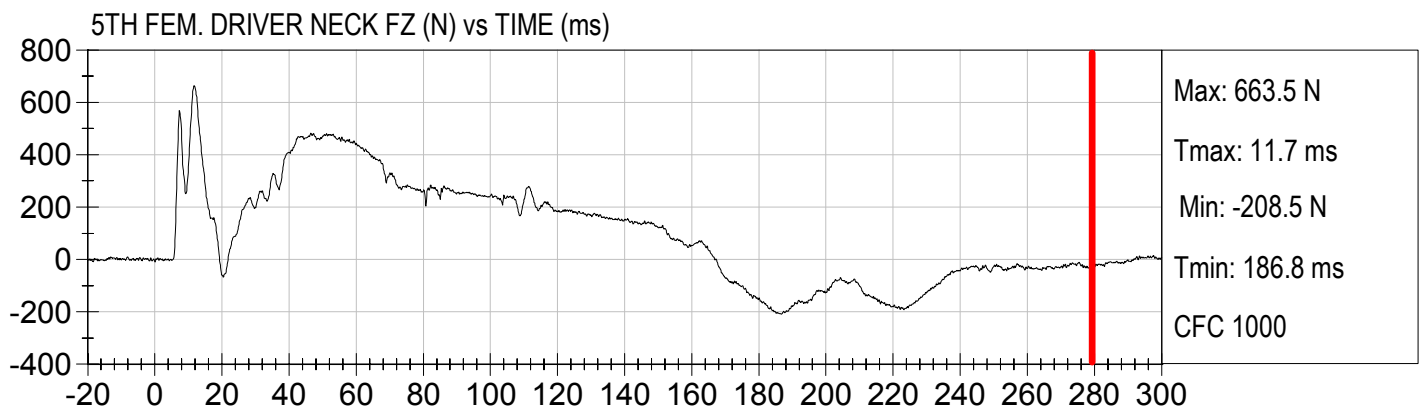
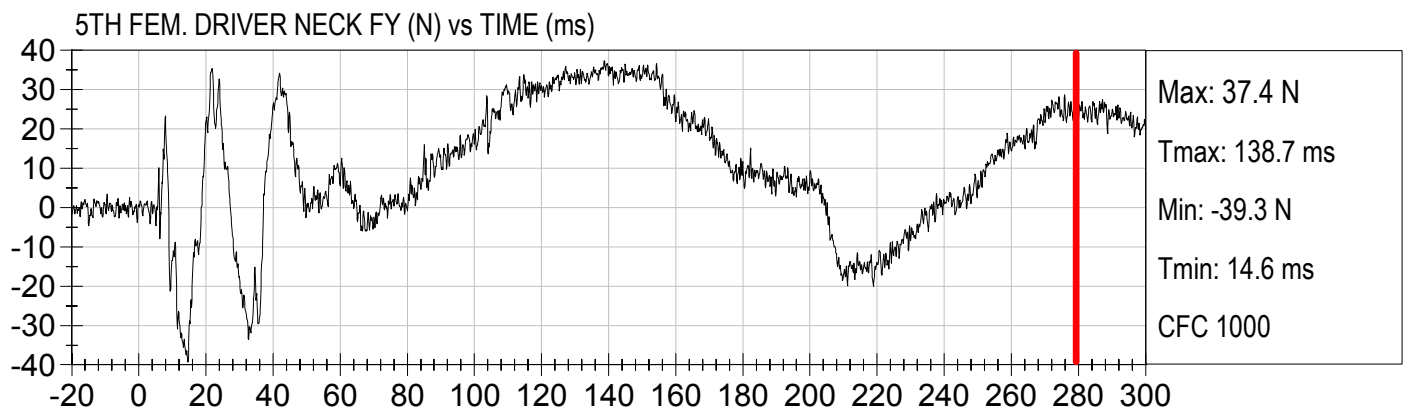
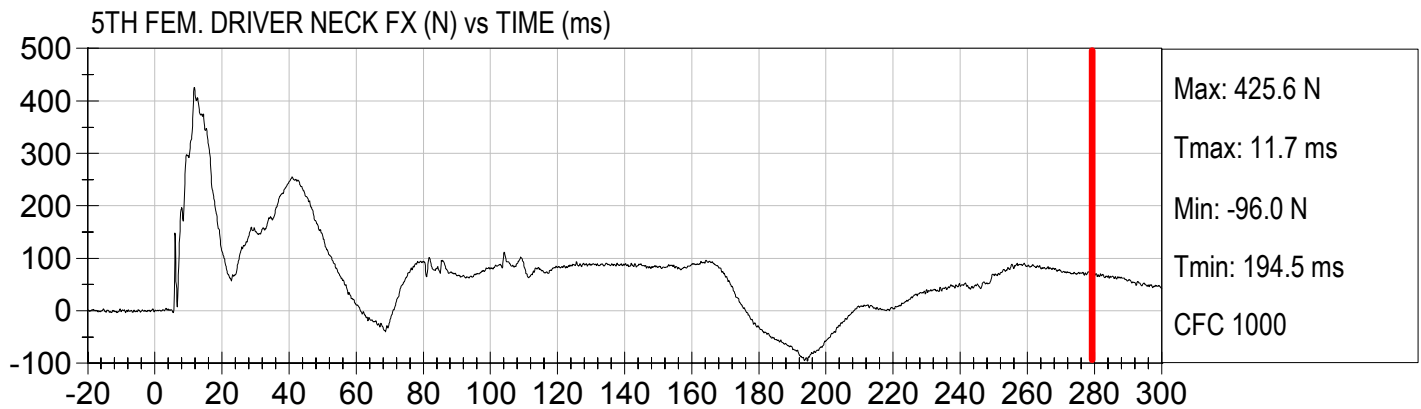


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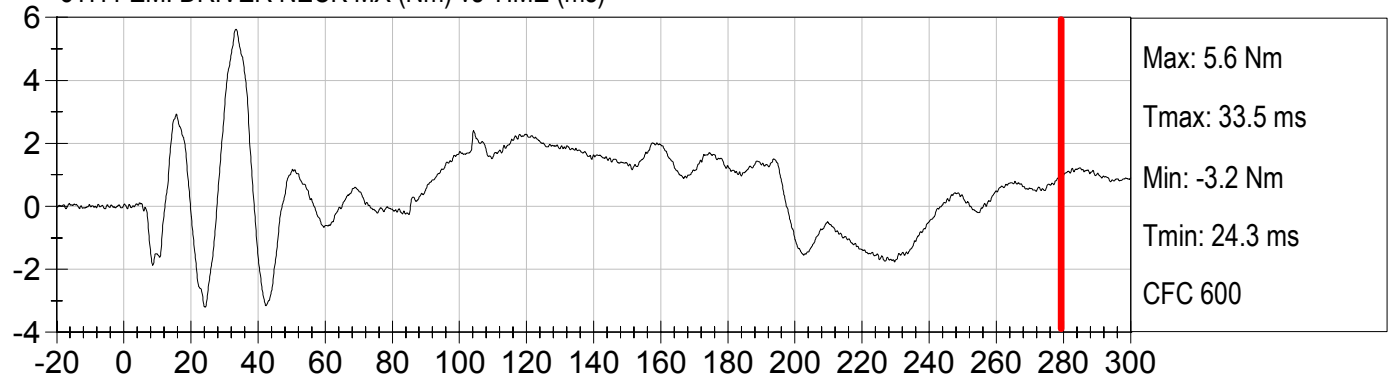
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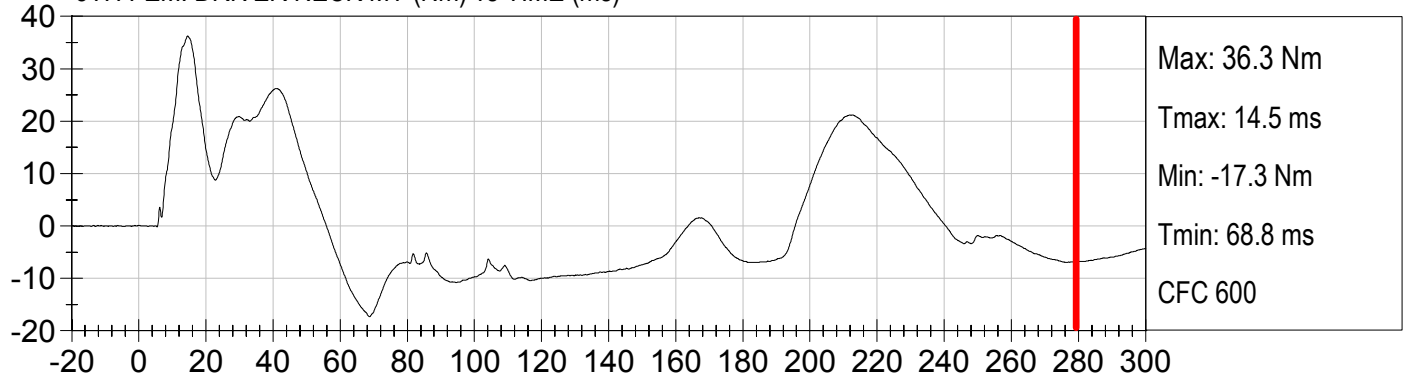


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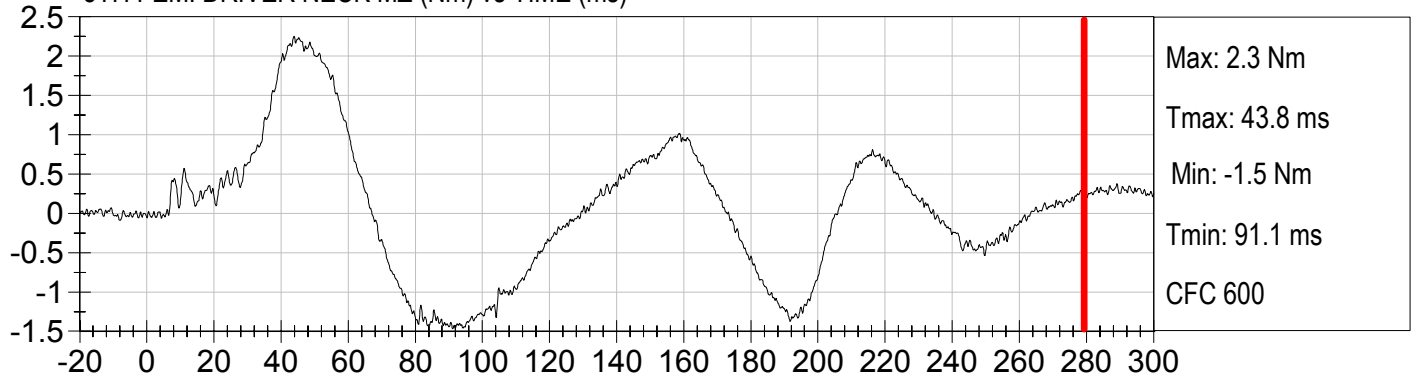
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



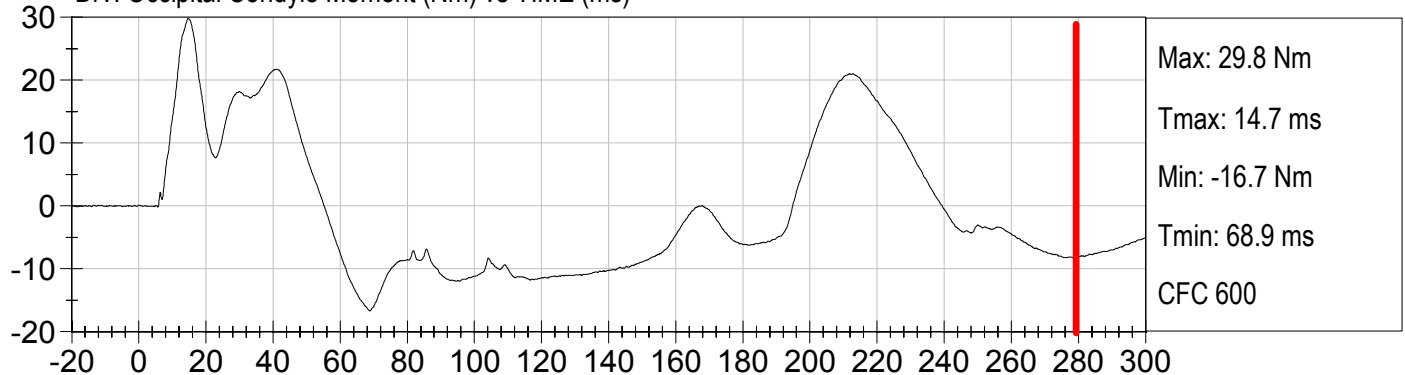
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5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



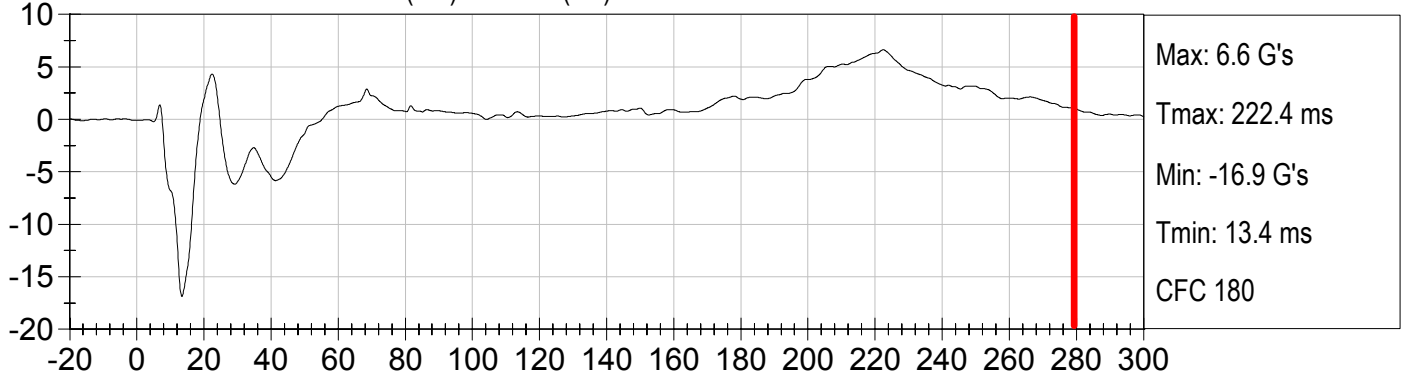


Low Risk Deployment
2005 Volvo S40 (C55901) (5th P1)

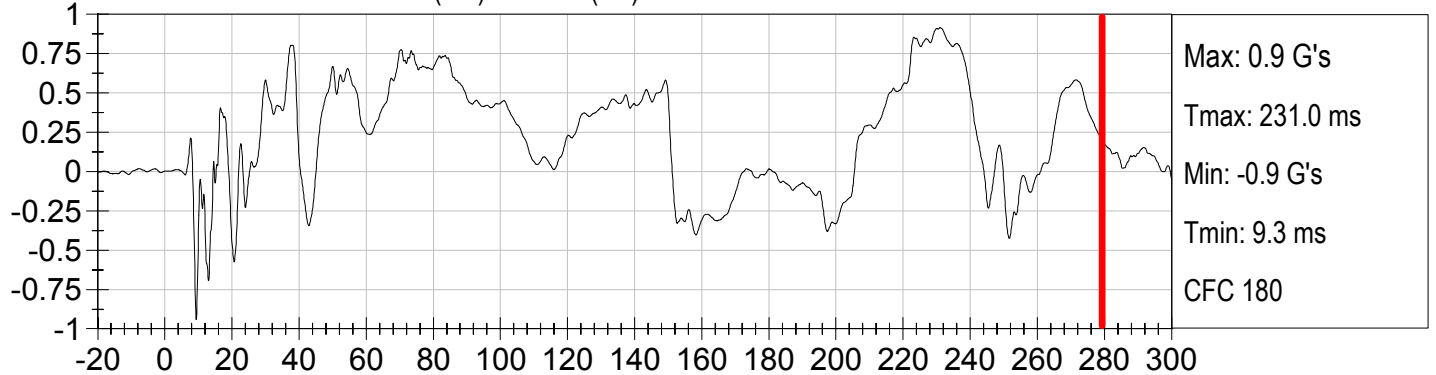
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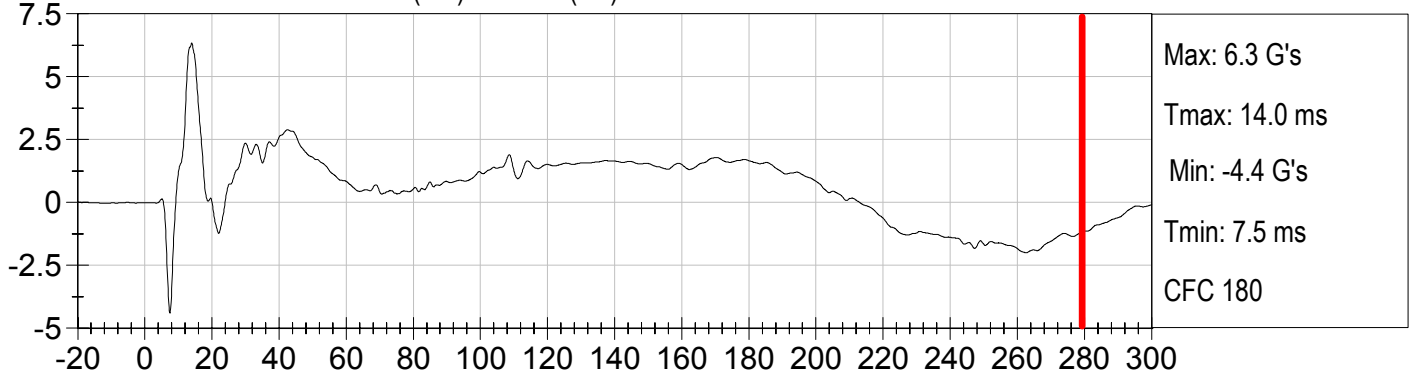
5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)



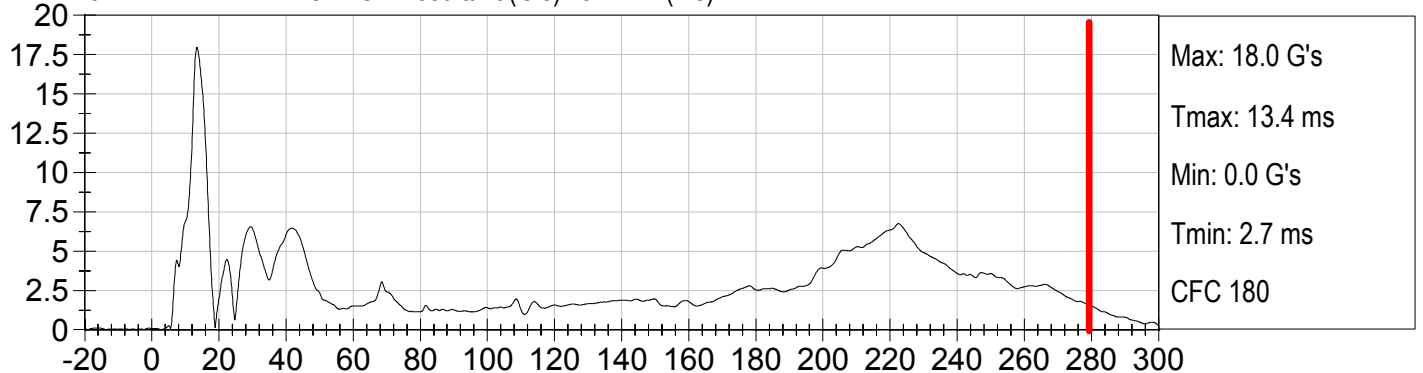
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5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)

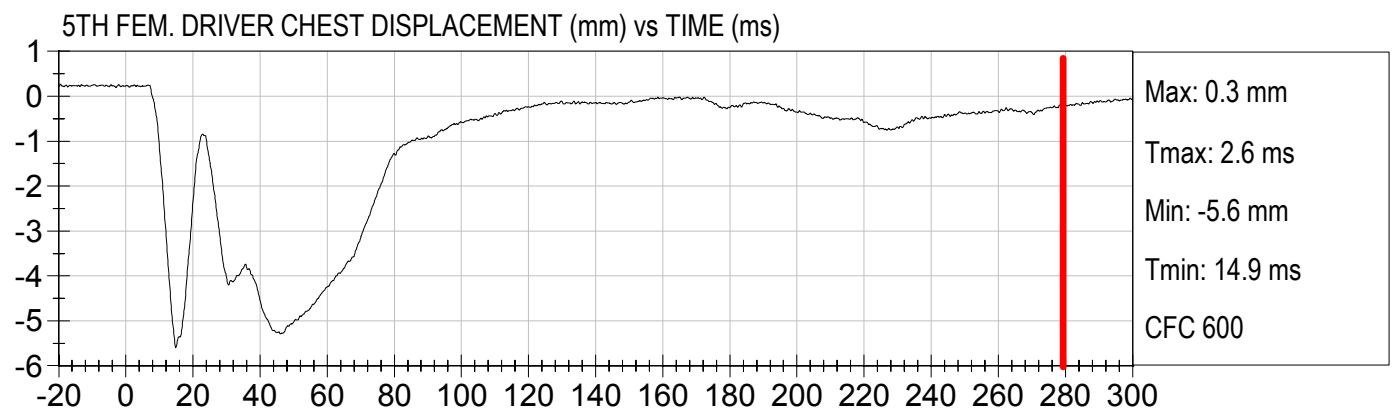
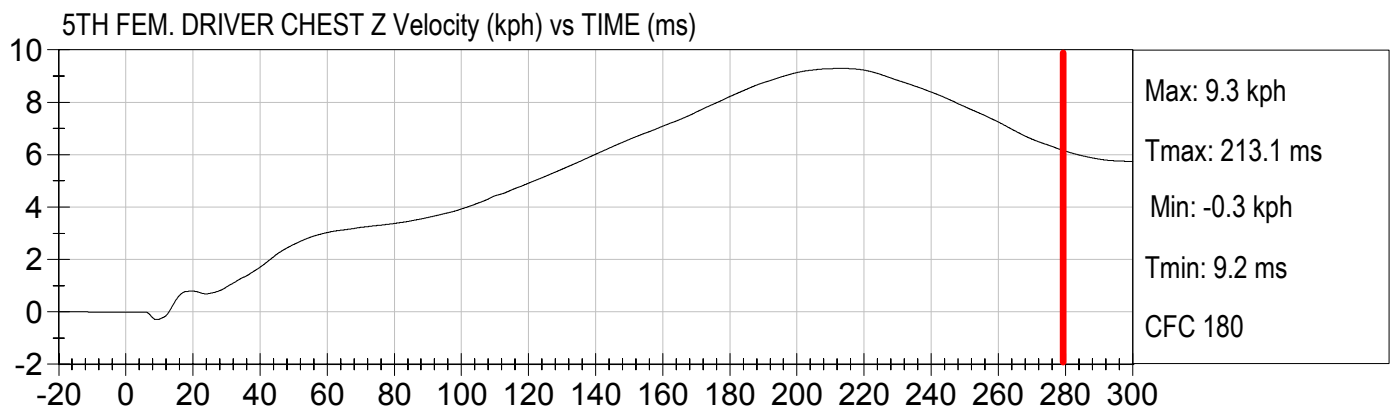
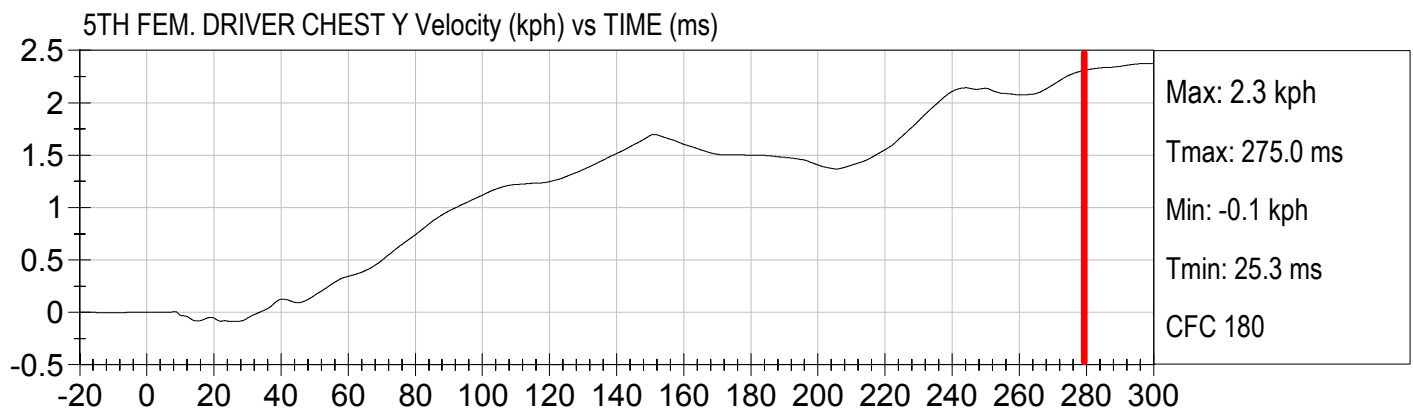
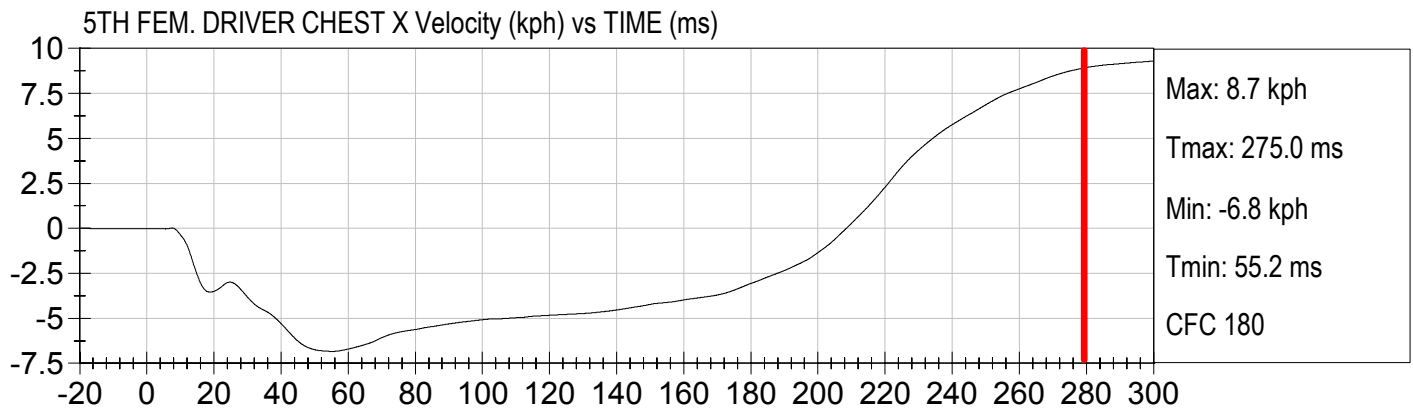


5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)



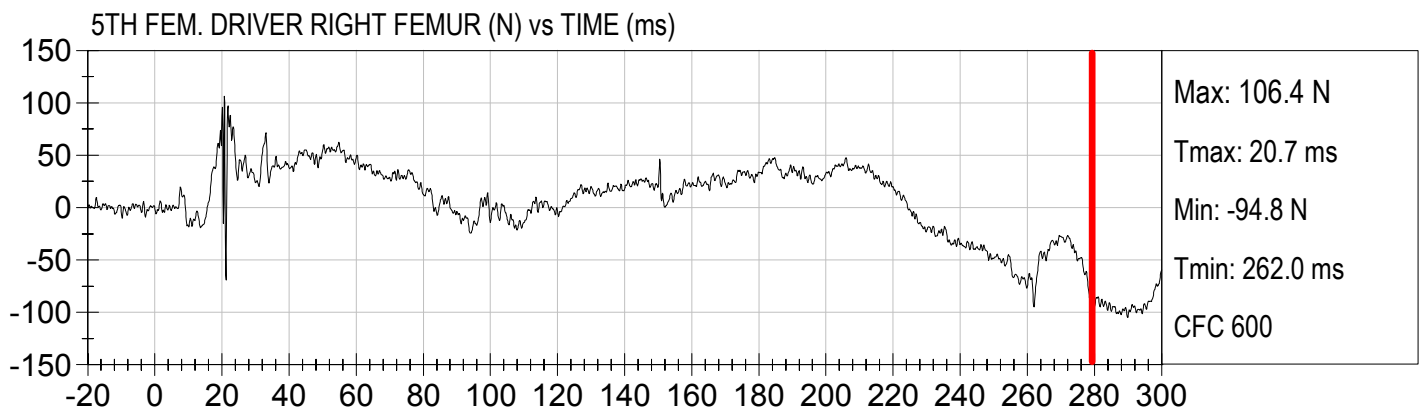
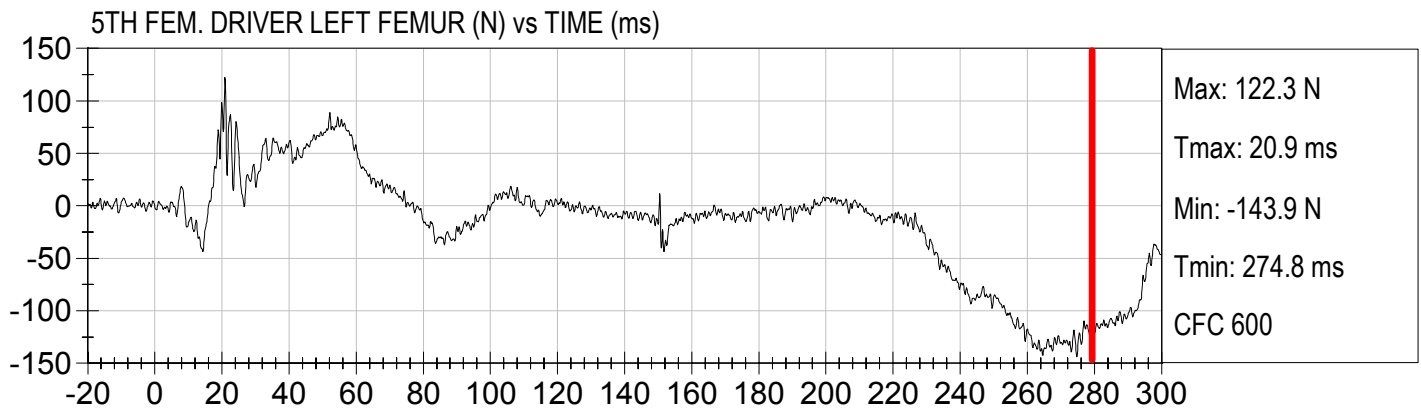


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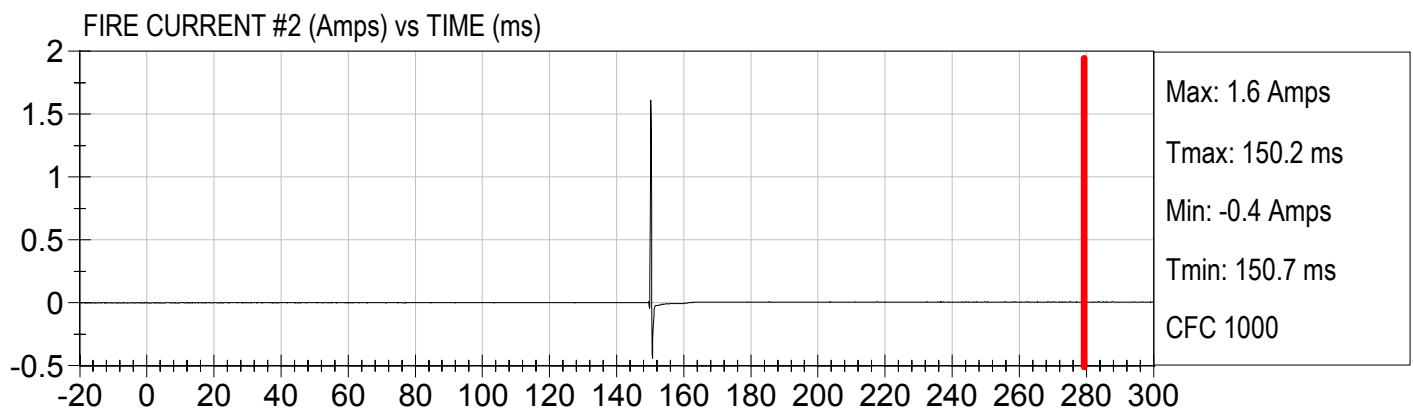
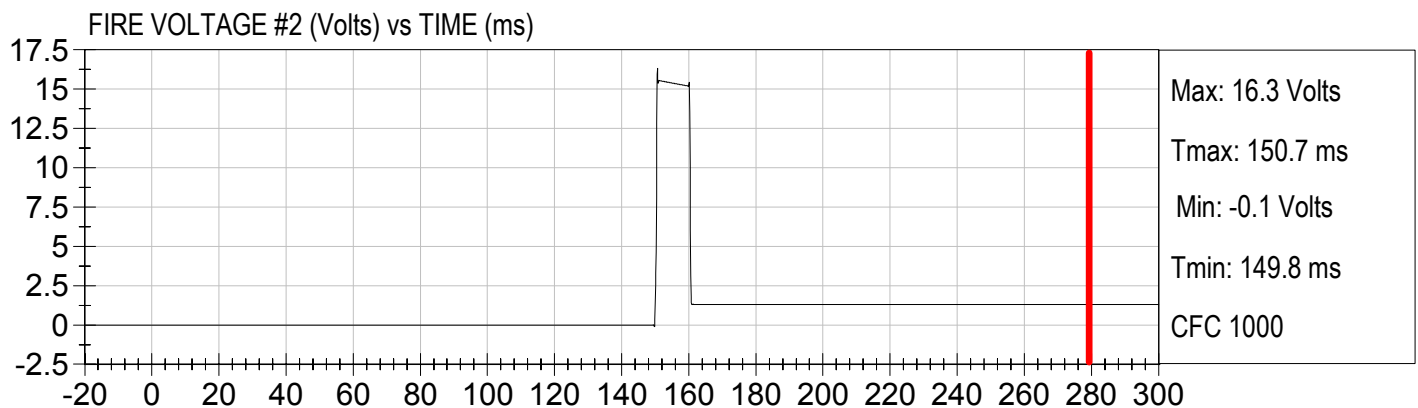
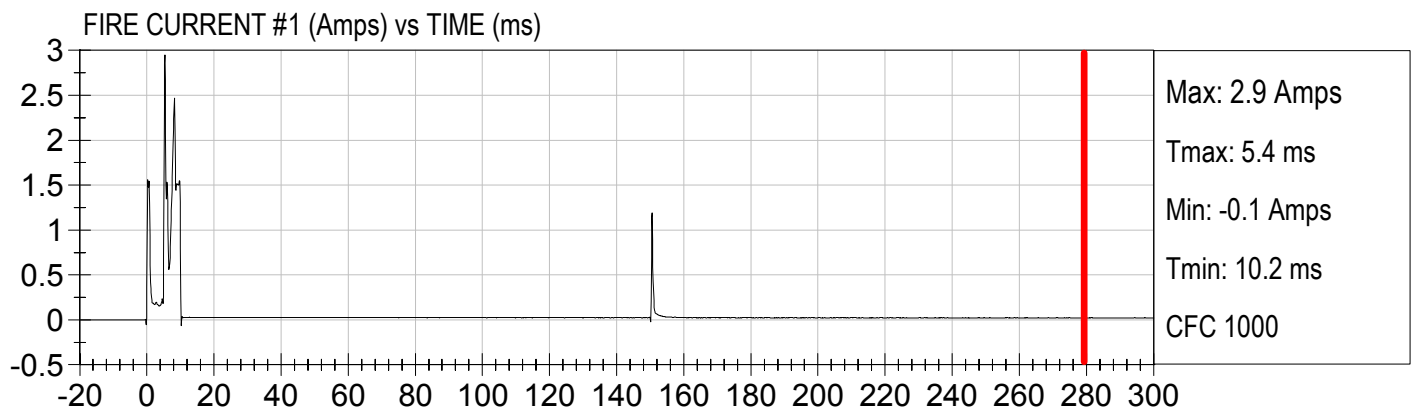
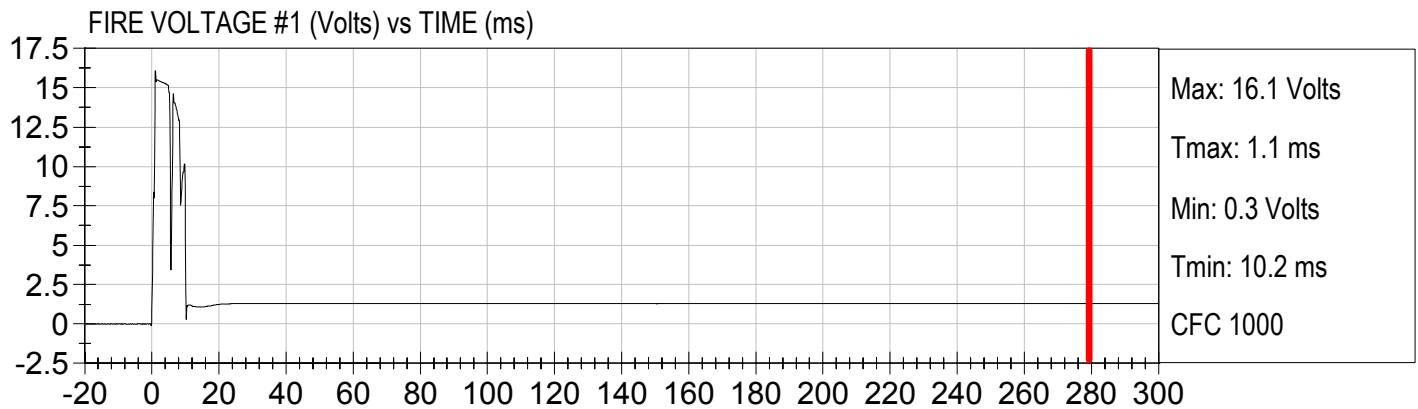


Injury Values Calculated between 0ms and 275ms



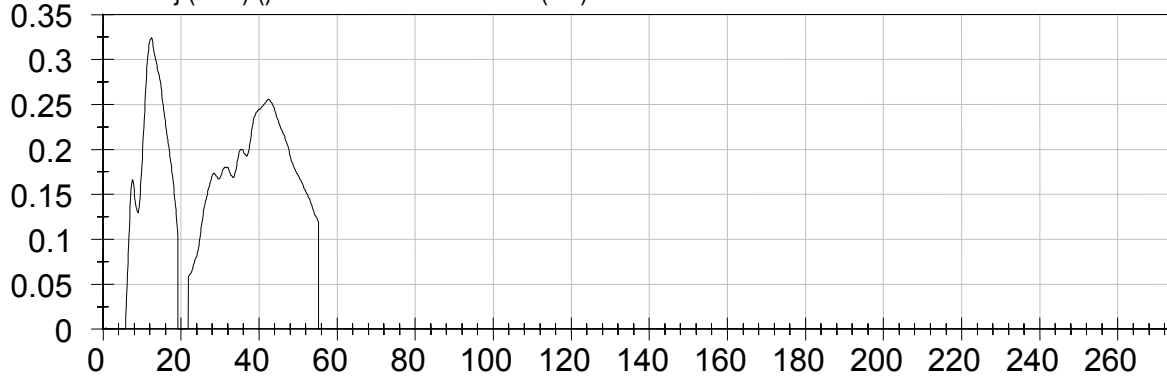


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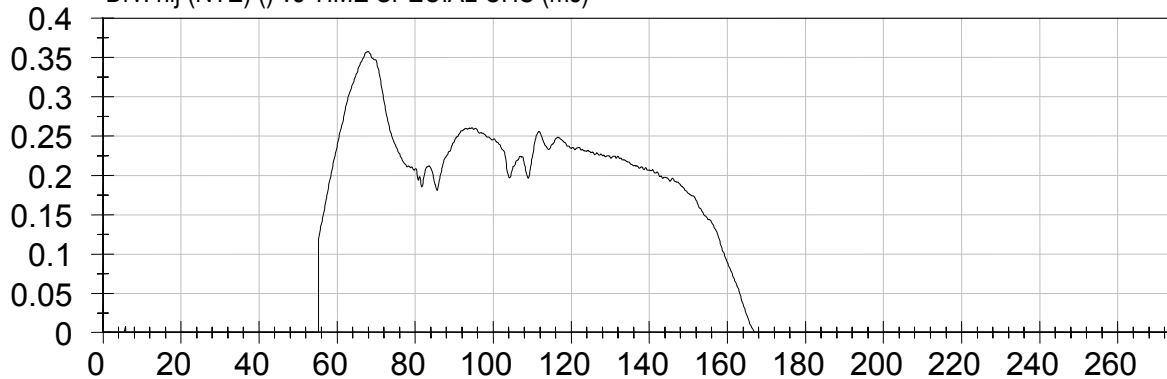


Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)



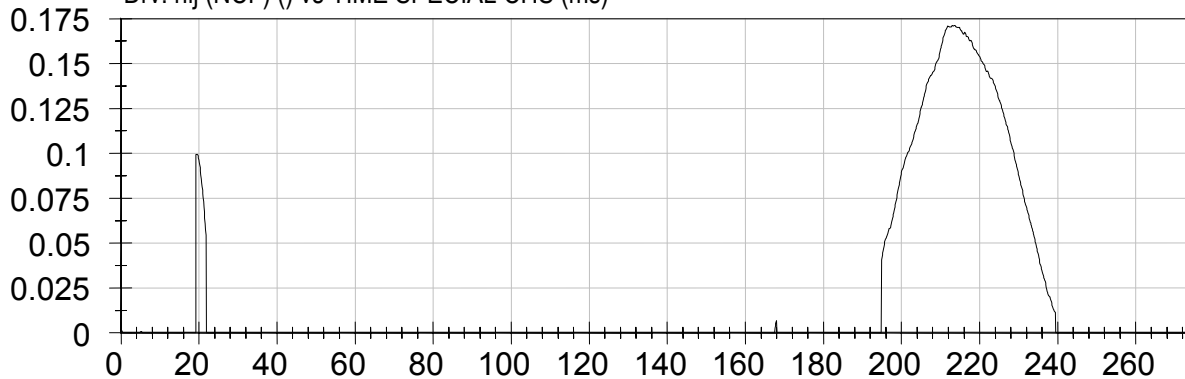
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Tmin: 0.1 ms
CFC 600

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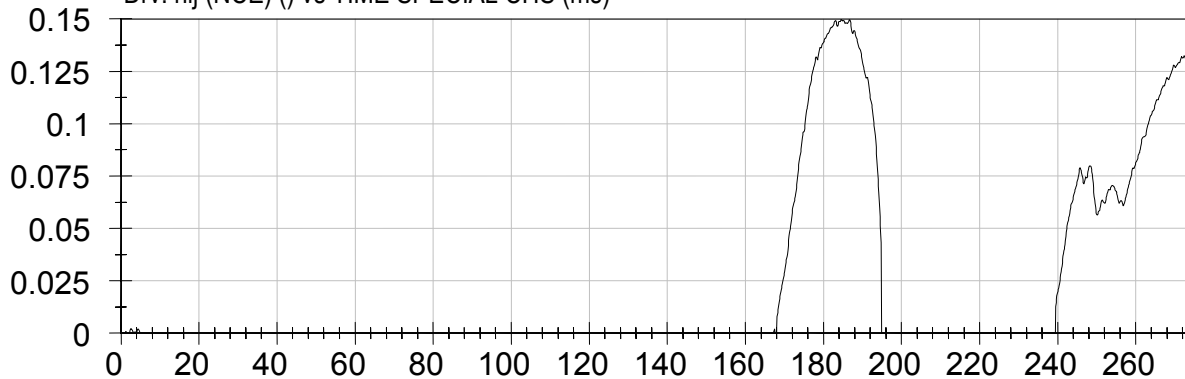
Max: 0.4
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Min: 0.0
Tmin: 0.1 ms
CFC 600

Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)



Max: 0.2
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Min: 0.0
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CFC 600

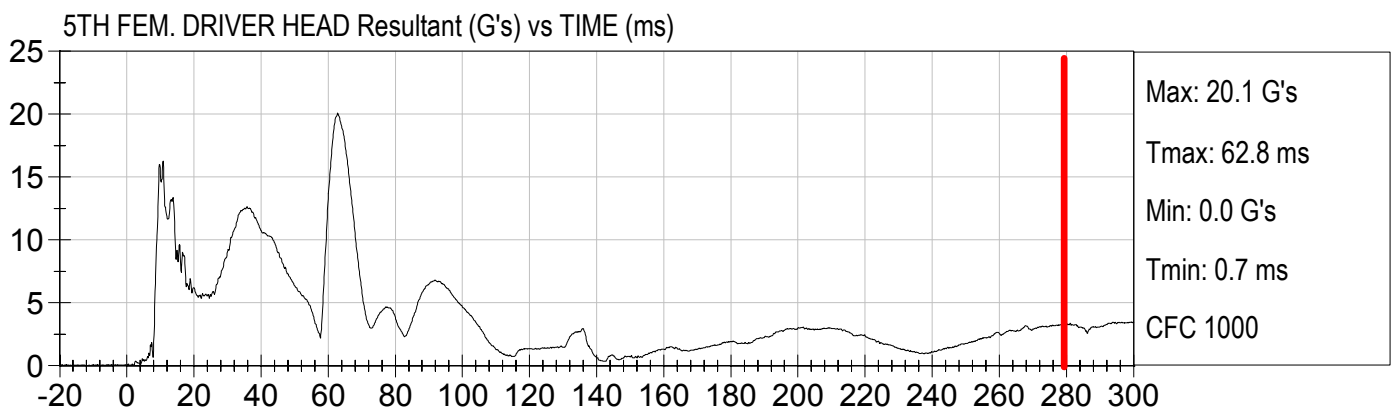
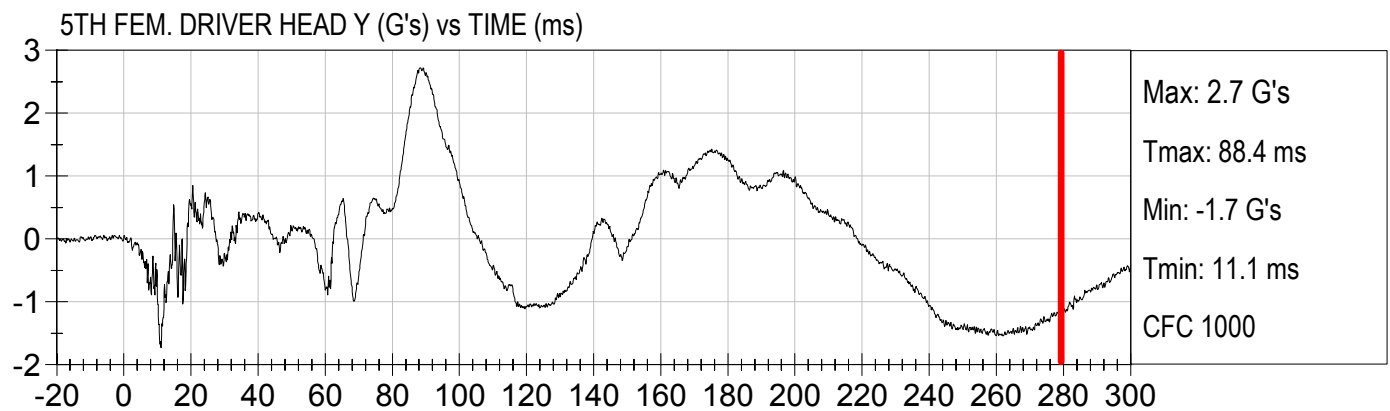
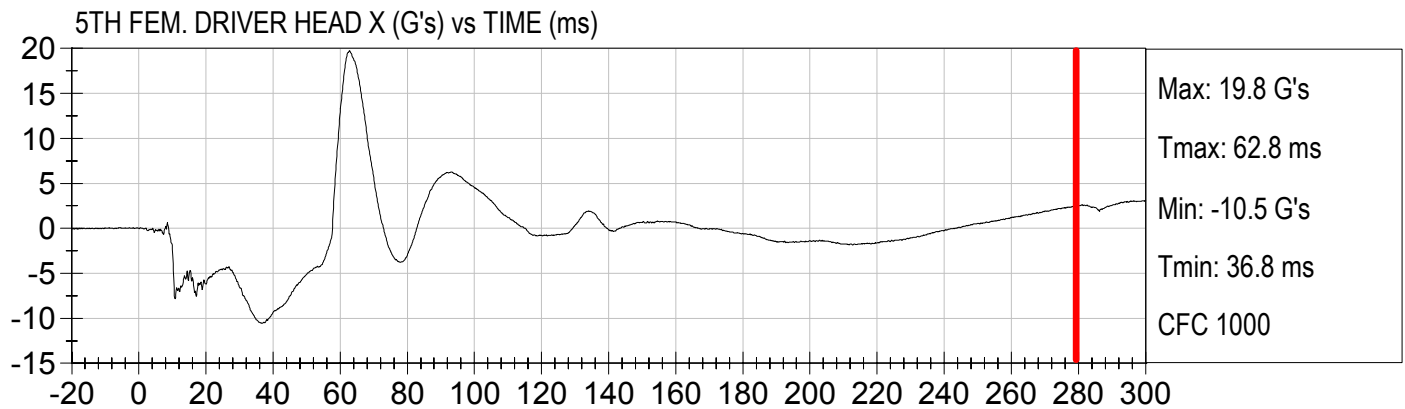
Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)



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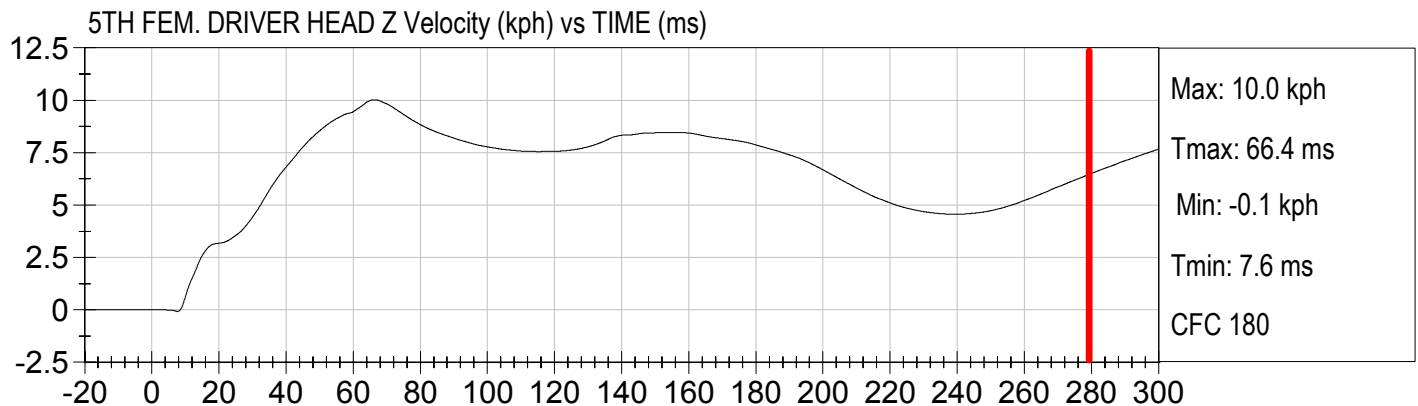
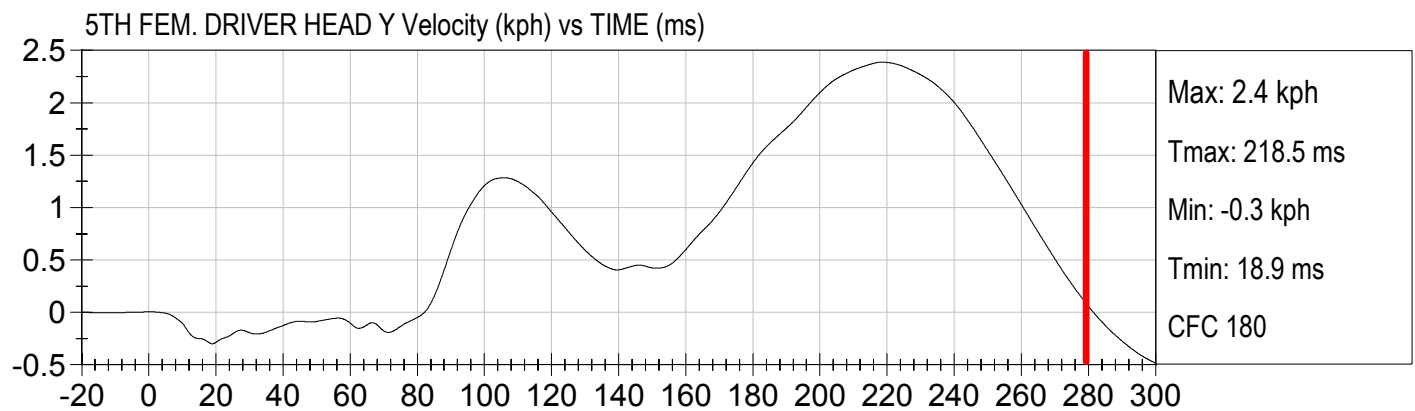
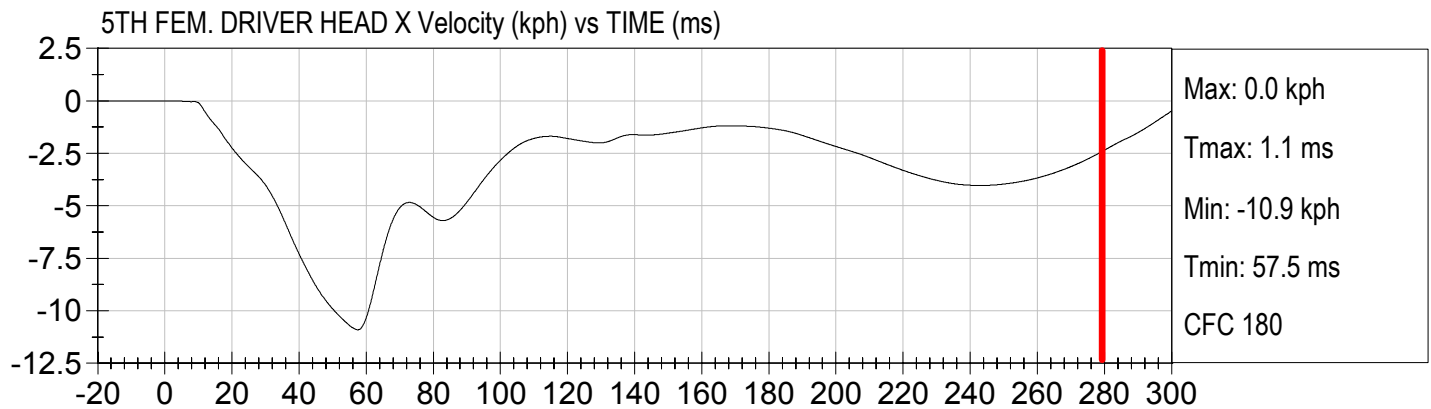


Injury Values Calculated between 0ms and 275ms



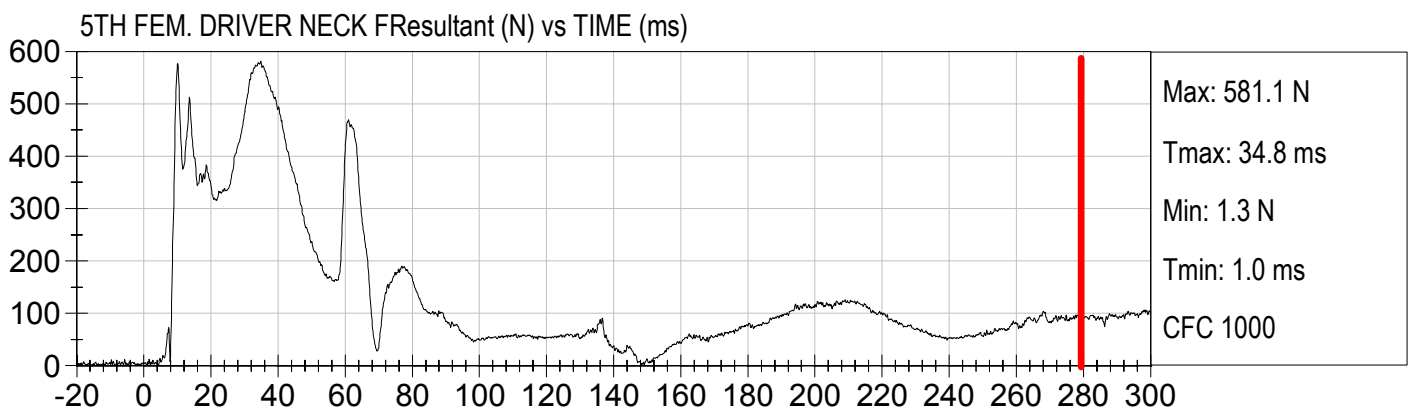
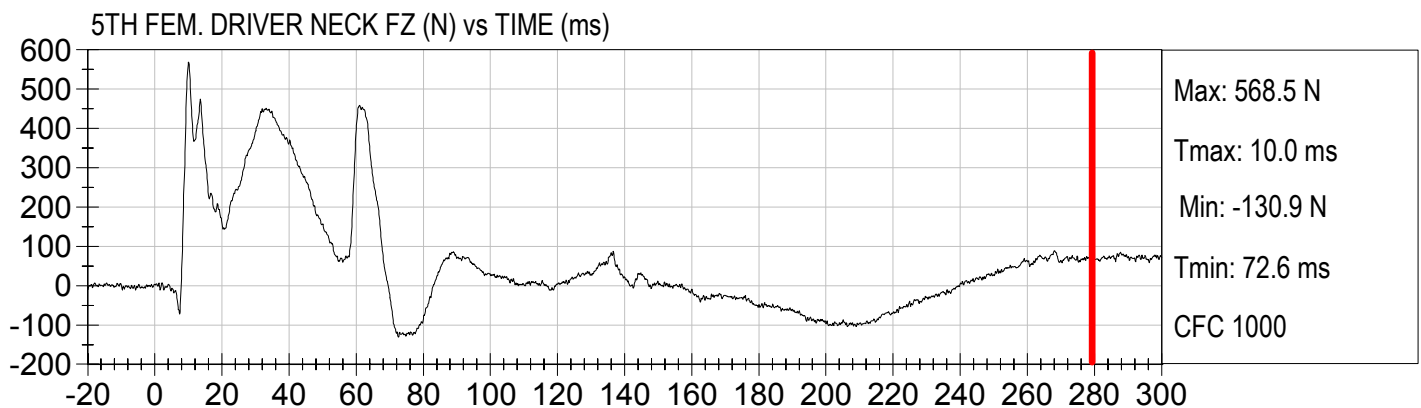
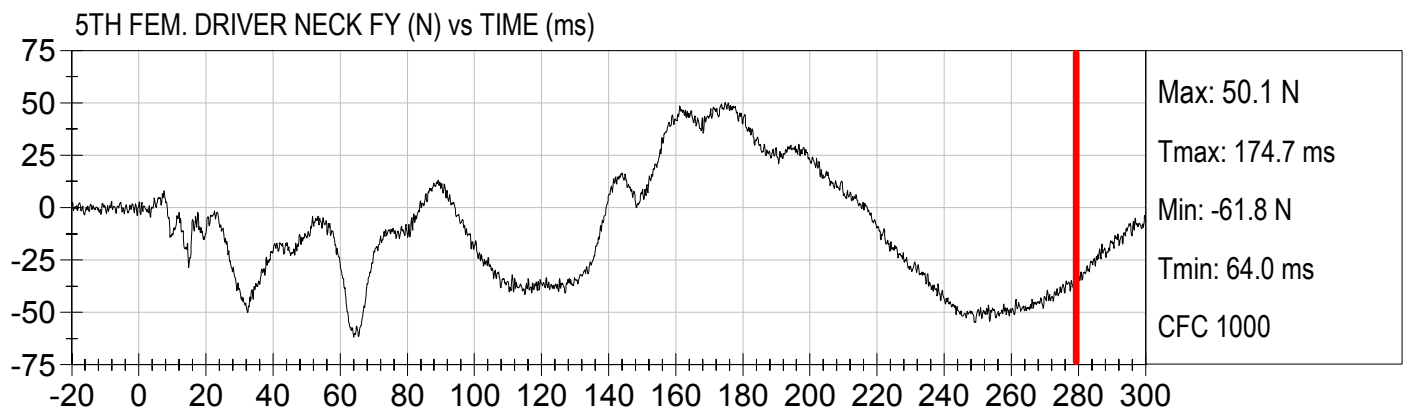
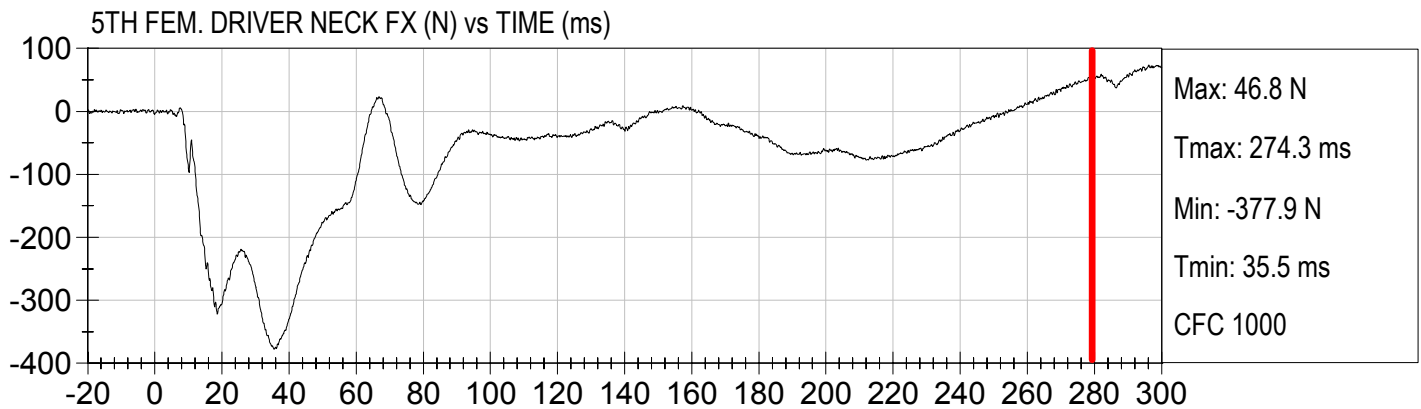


Injury Values Calculated between 0ms and 275ms





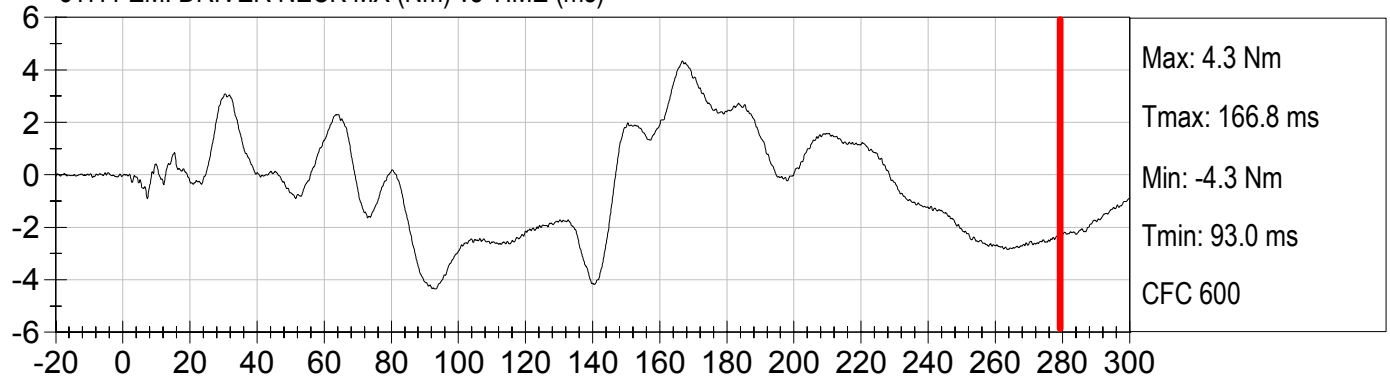
Injury Values Calculated between 0ms and 275ms



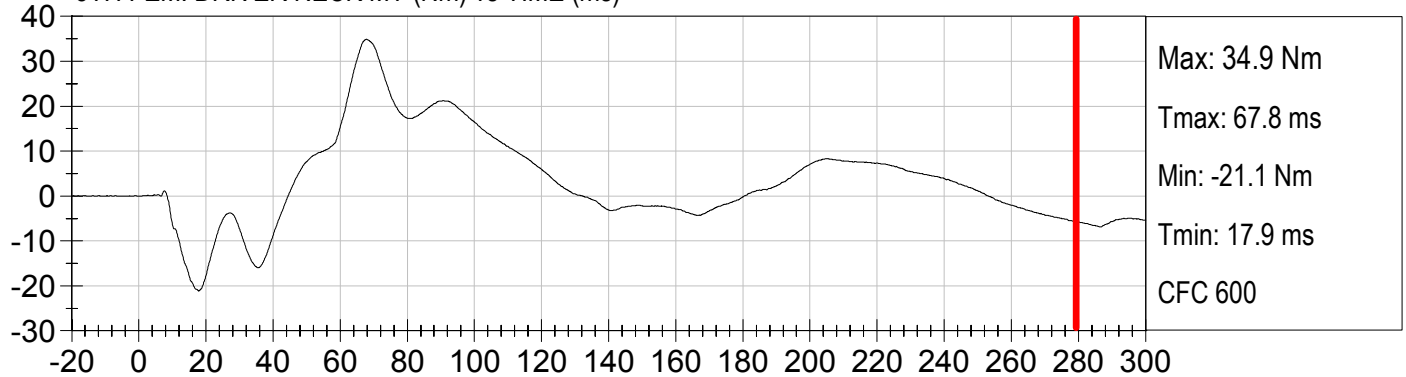


Injury Values Calculated between 0ms and 275ms

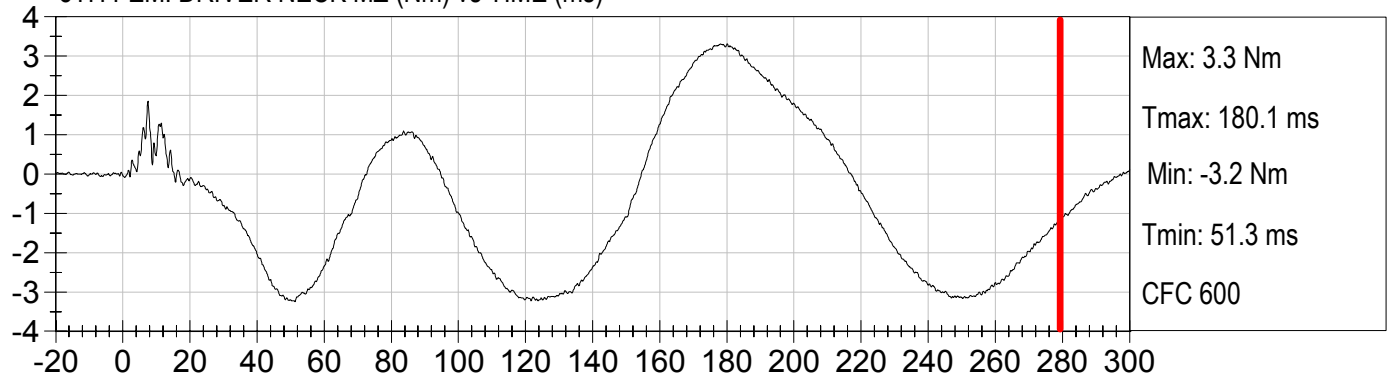
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



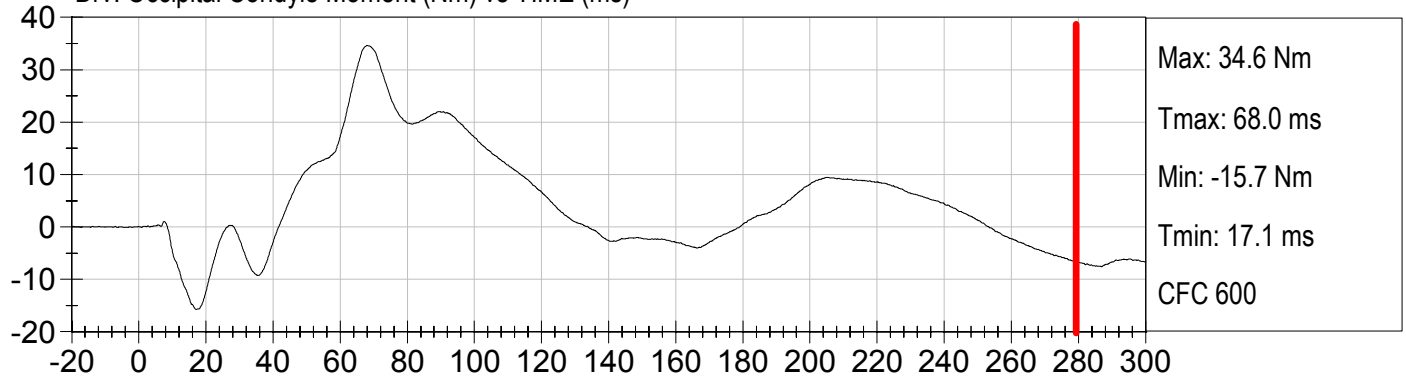
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)



5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)

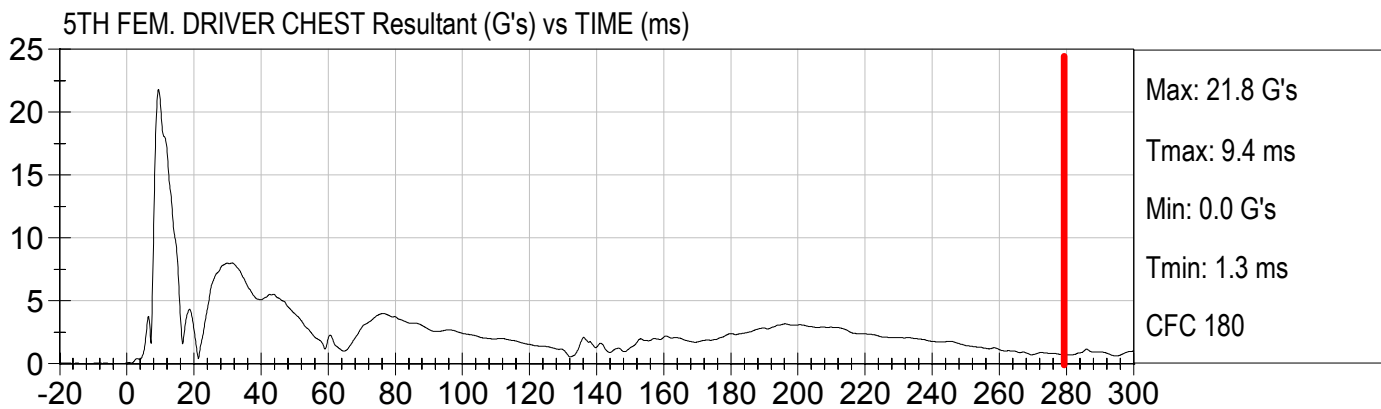
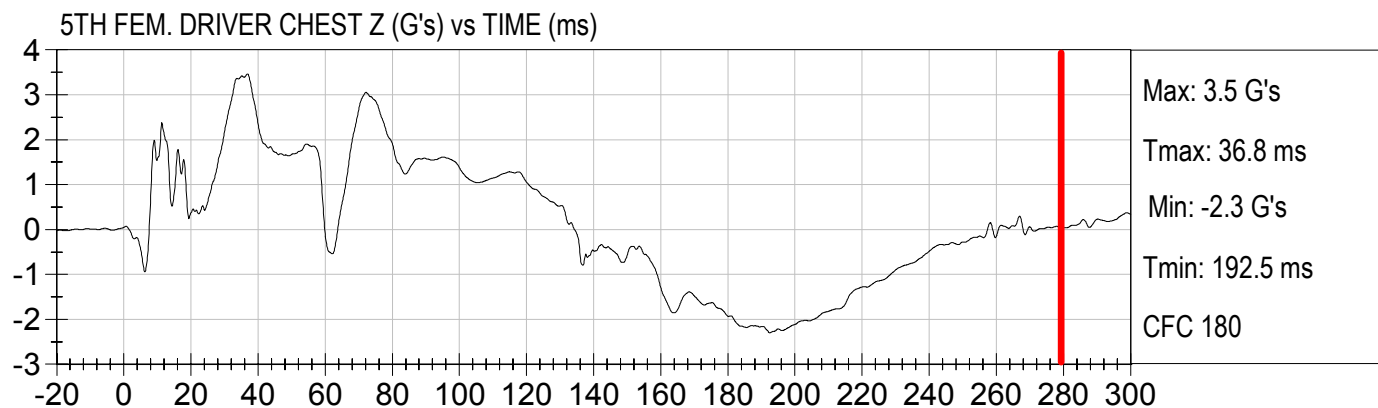
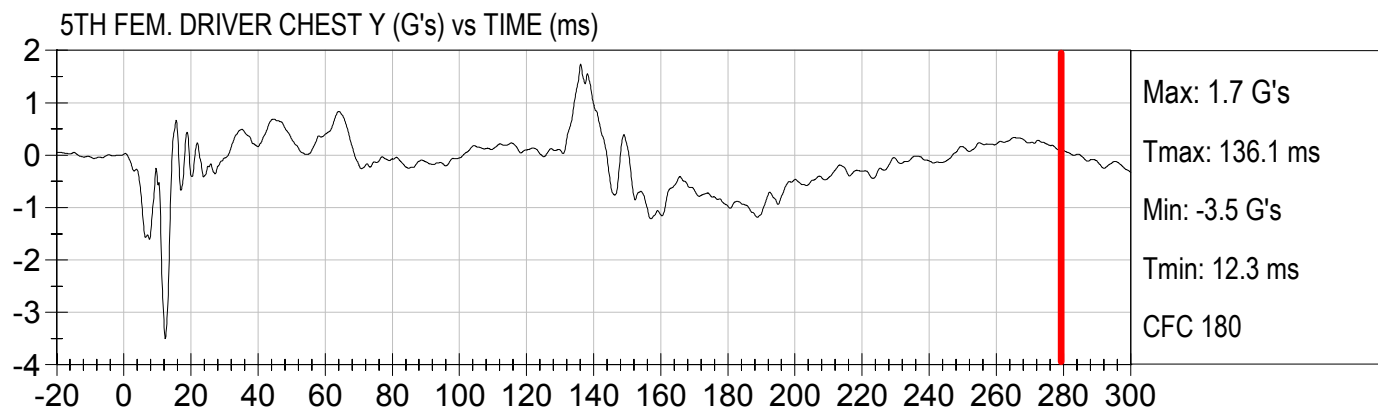
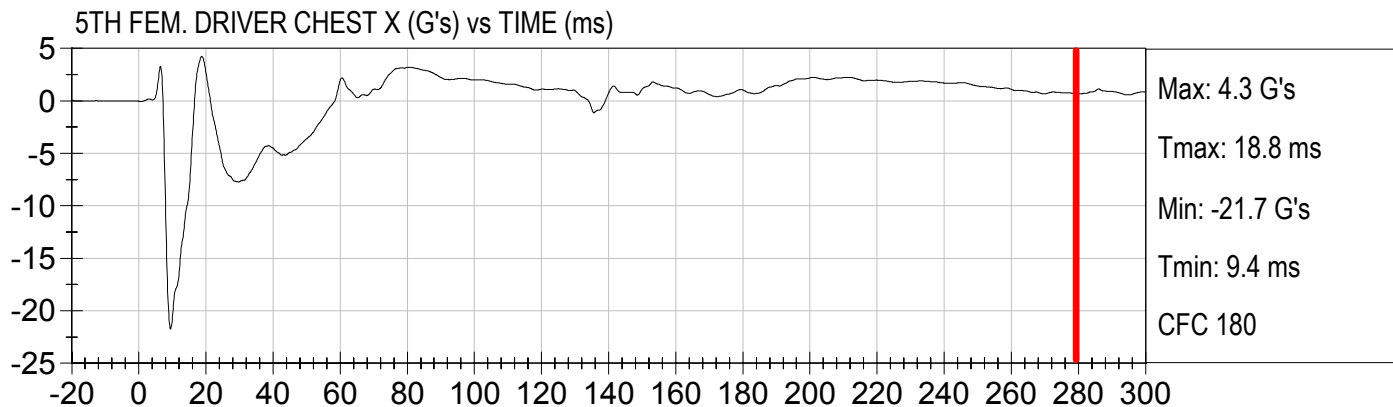


Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



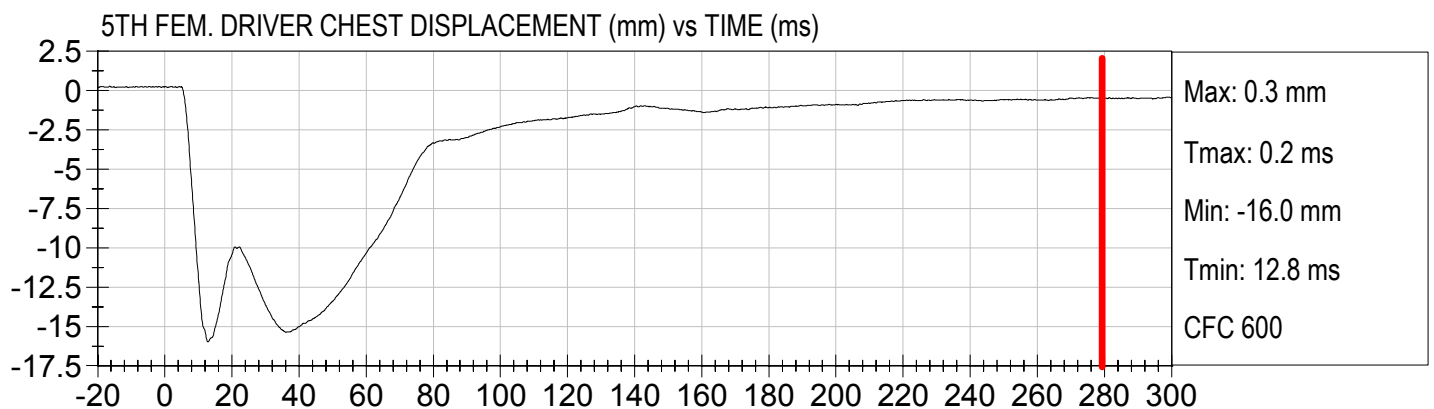
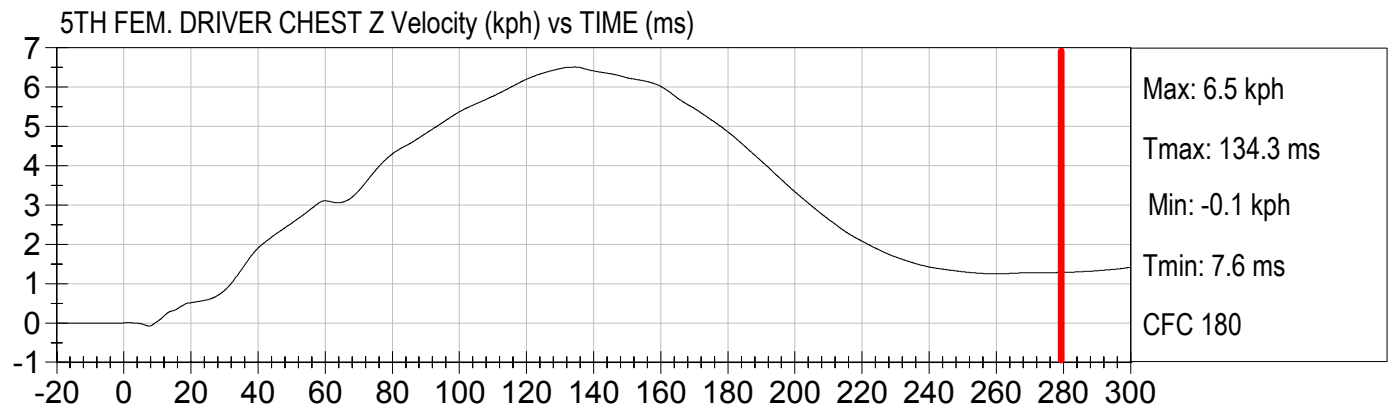
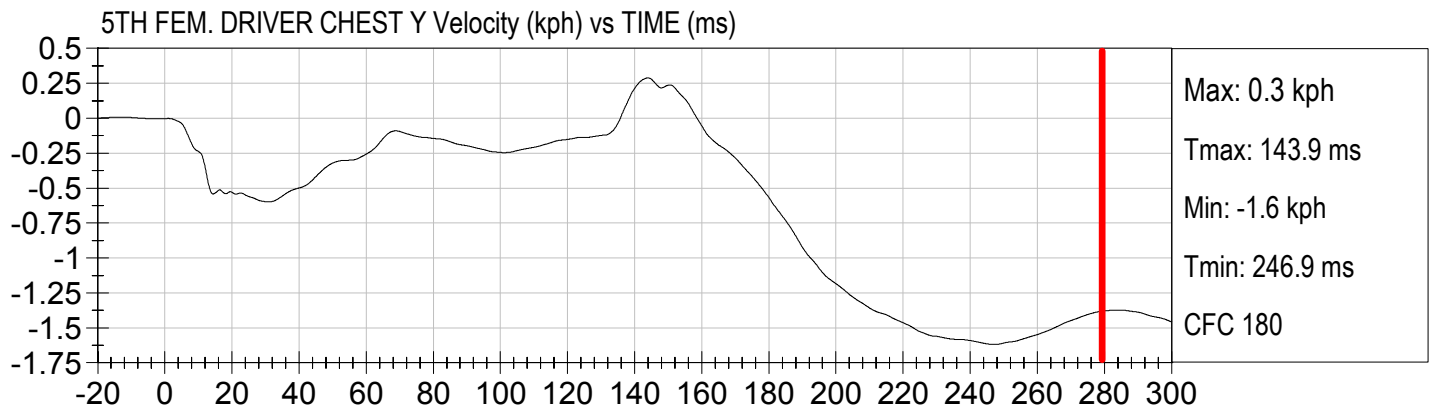
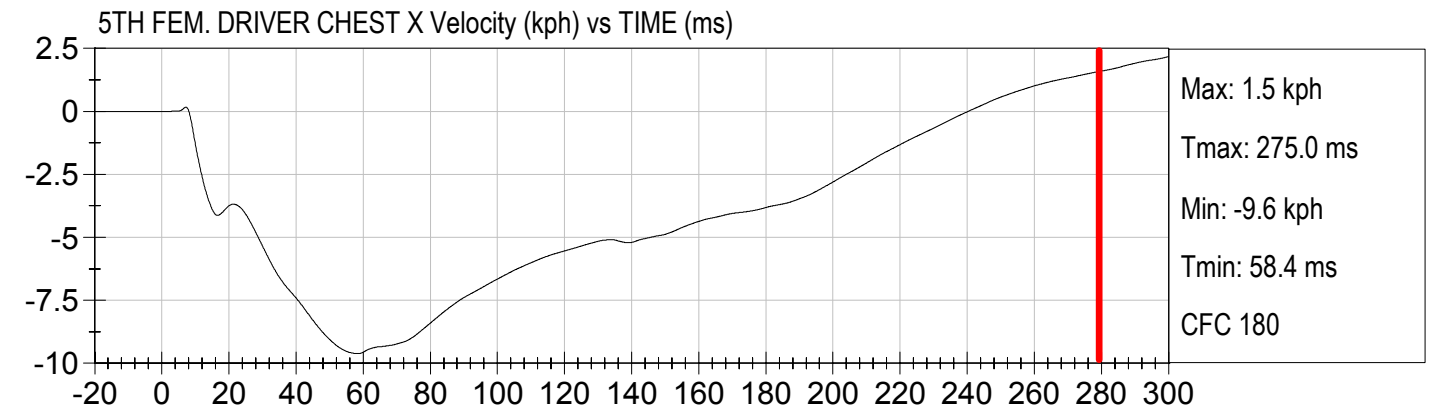


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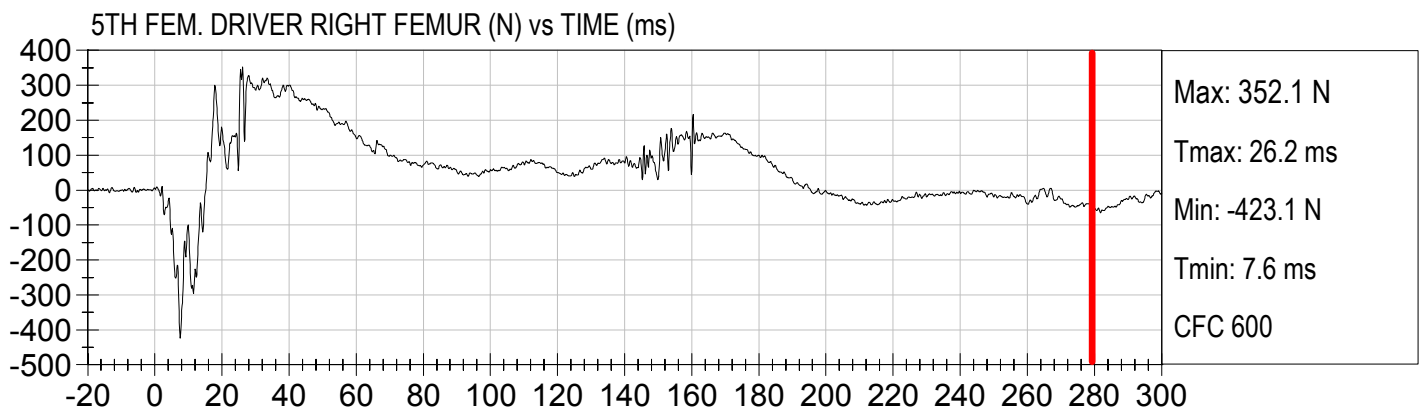
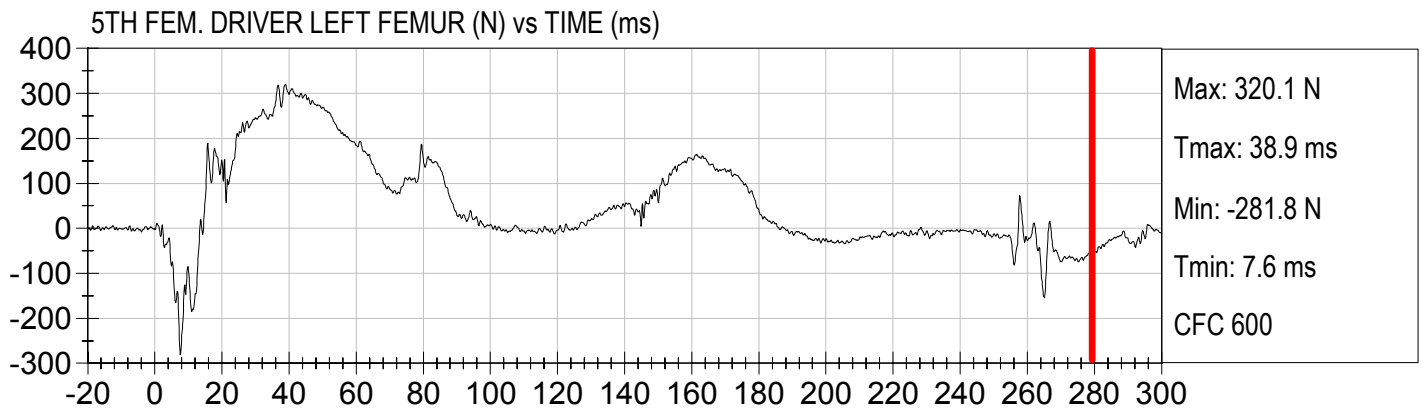


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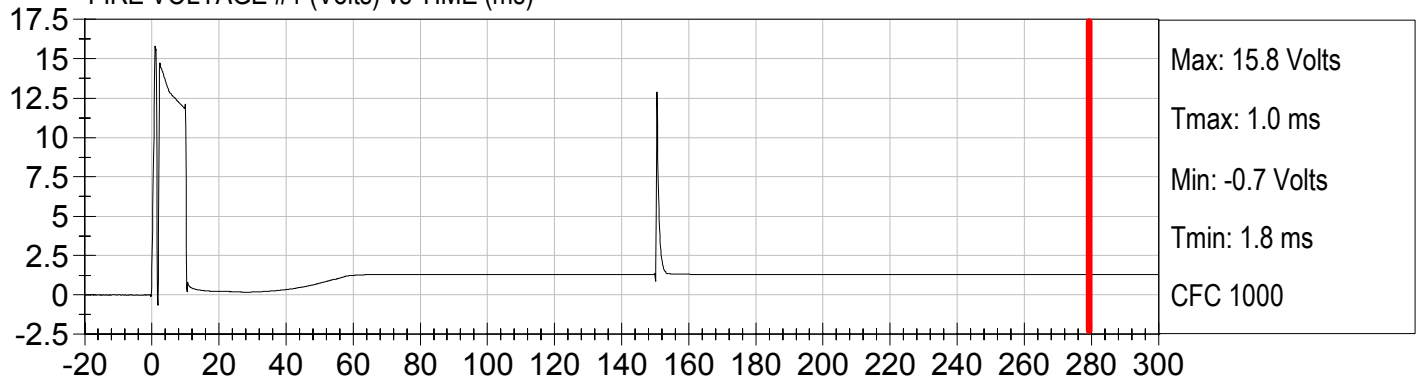
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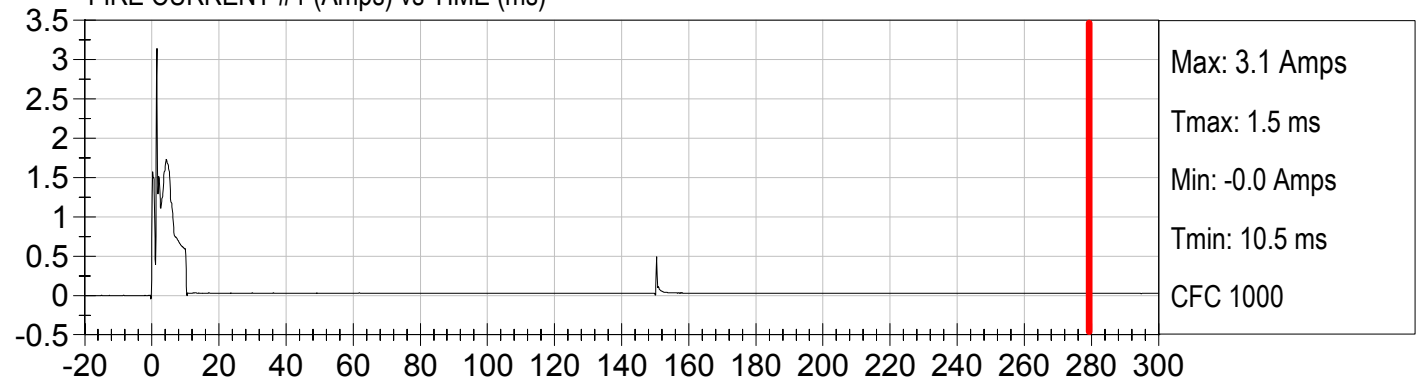


Injury Values Calculated between 0ms and 275ms

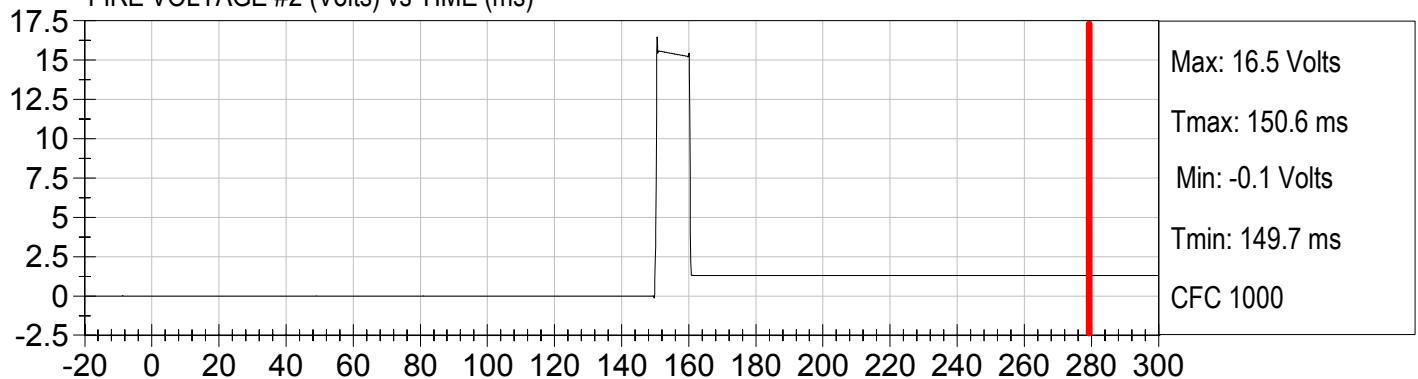
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



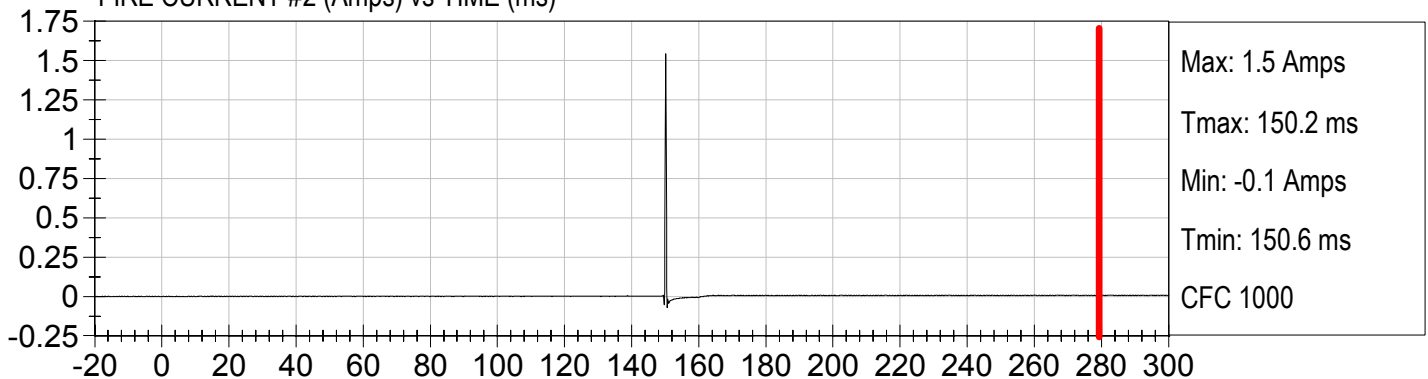
FIRE CURRENT #1 (Amps) vs TIME (ms)

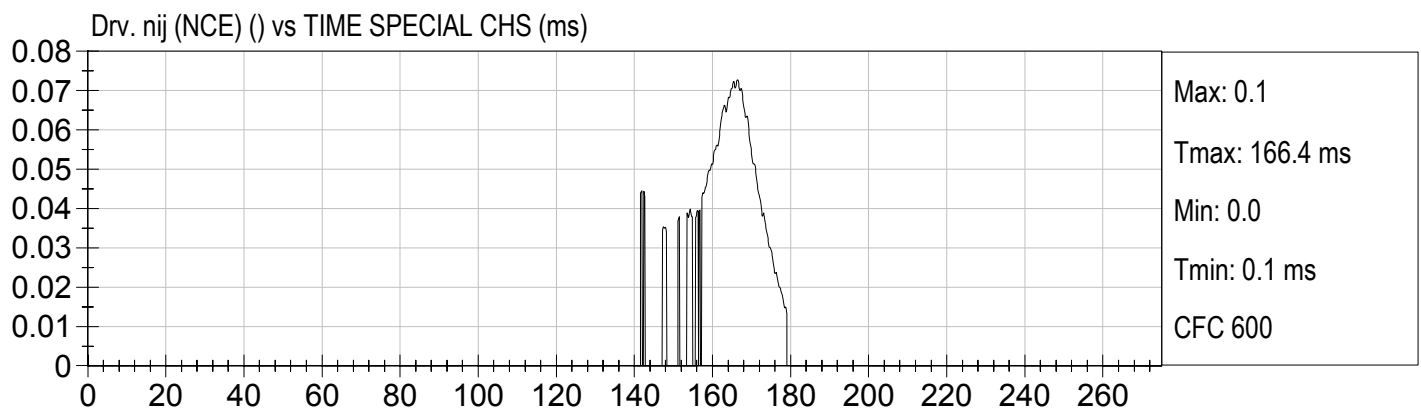
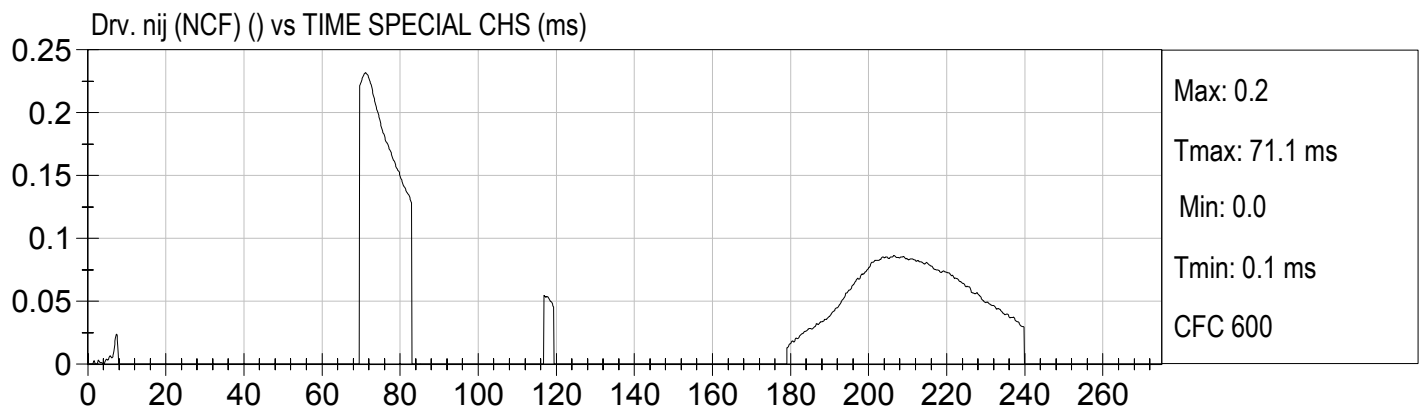
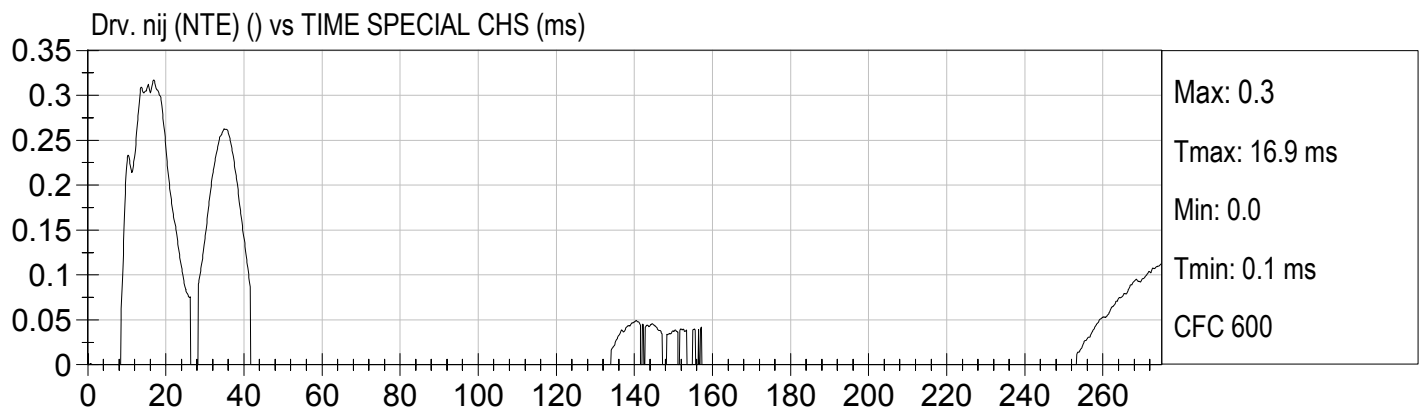
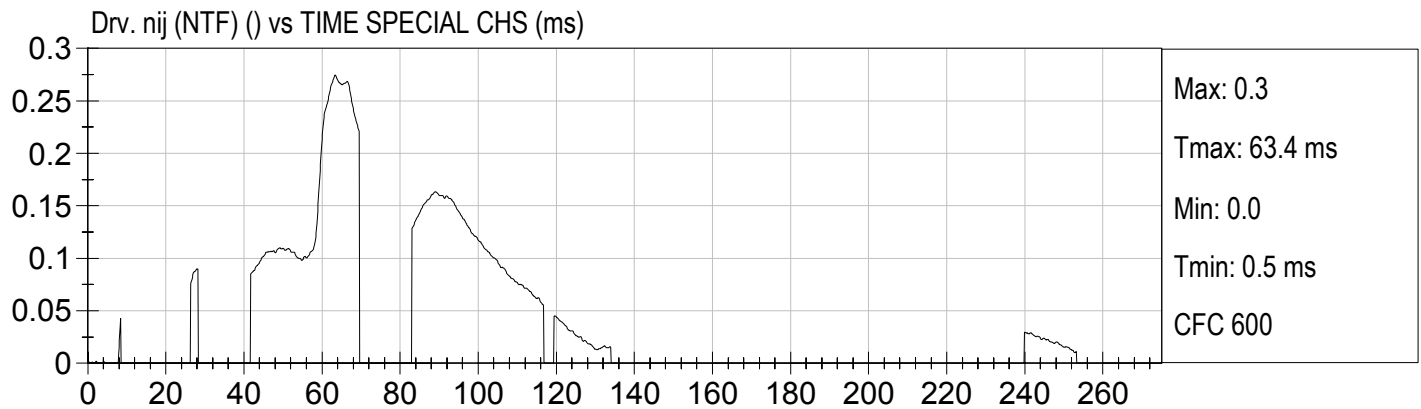


FIRE VOLTAGE #2 (Volts) vs TIME (ms)



FIRE CURRENT #2 (Amps) vs TIME (ms)





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MFD. BY VOLVO GOTHENBURG SWEDEN

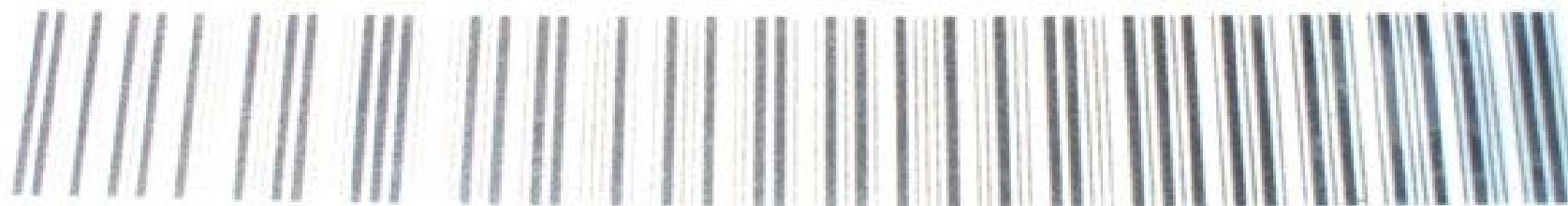
DATE: GV.W.R. GA.W.R.FRONT GA.W.R.REAR

06/04 4320 2380 2130 LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL
MOTOR VEHICLE SAFETY, BUMPER AND THEFT PROTEC-
TION STANDARDS IN EFFECT ON THE DATE OF MANUFAC-
TURE SHOWN ABOVE.

VIN YV1MS382852049889 PASS.CAR

0617778



VOLVO

3514635



TIRE AND LOADING INFORMATION

SEATING CAPACITY | TOTAL 5 | FRONT 2 | REAR 3

The combined weight of occupants and cargo should never exceed 365 kg or 800 lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE	
205/55R16	FRONT	250KPA, 36PSI
	REAR	250KPA, 36PSI
COMPACT SPARE TIRE	COLD TIRE INFLATION PRESSURE	
T125/85R16	420KPA, 61PSI	

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

VOLVO

30714342

Tire Placard



Pre-Test Front View of Test Vehicle



Post-Test Front View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Right Front Three-Quarter View of Test Vehicle



Post-Test Right Front Three-Quarter View of Test Vehicle



Pre-Test Left Front Three-Quarter View of Test Vehicle



Post-Test Left Front Three-Quarter View of Test Vehicle



Pre-Test Right Rear Three-Quarter View of Test Vehicle



Post-Test Right Rear Three-Quarter View of Test Vehicle



Pre-Test Left Rear Three-Quarter View of Test Vehicle



Post-Test Left Rear Three-Quarter View of Test Vehicle



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



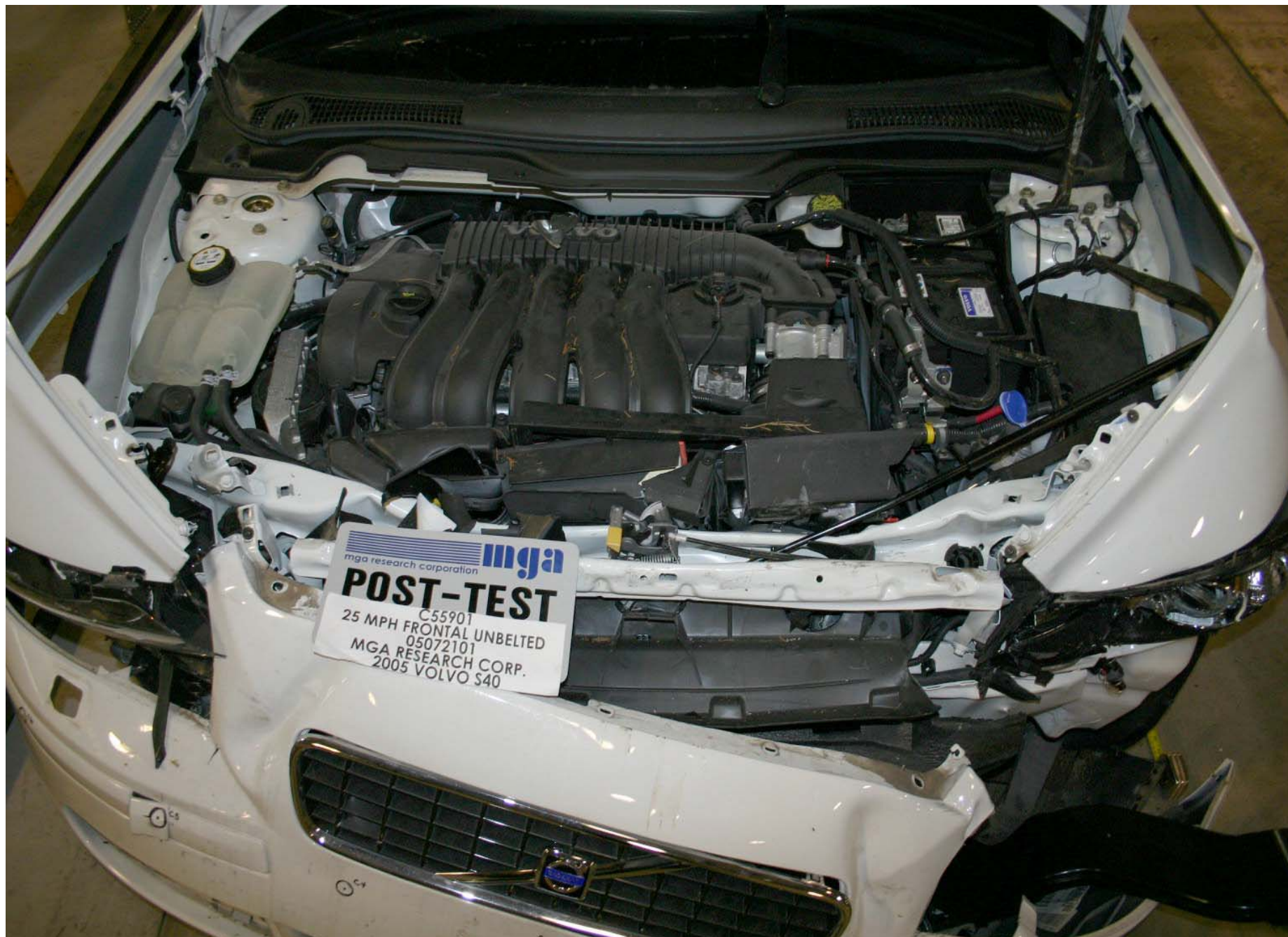
Pre-Test Windshield View



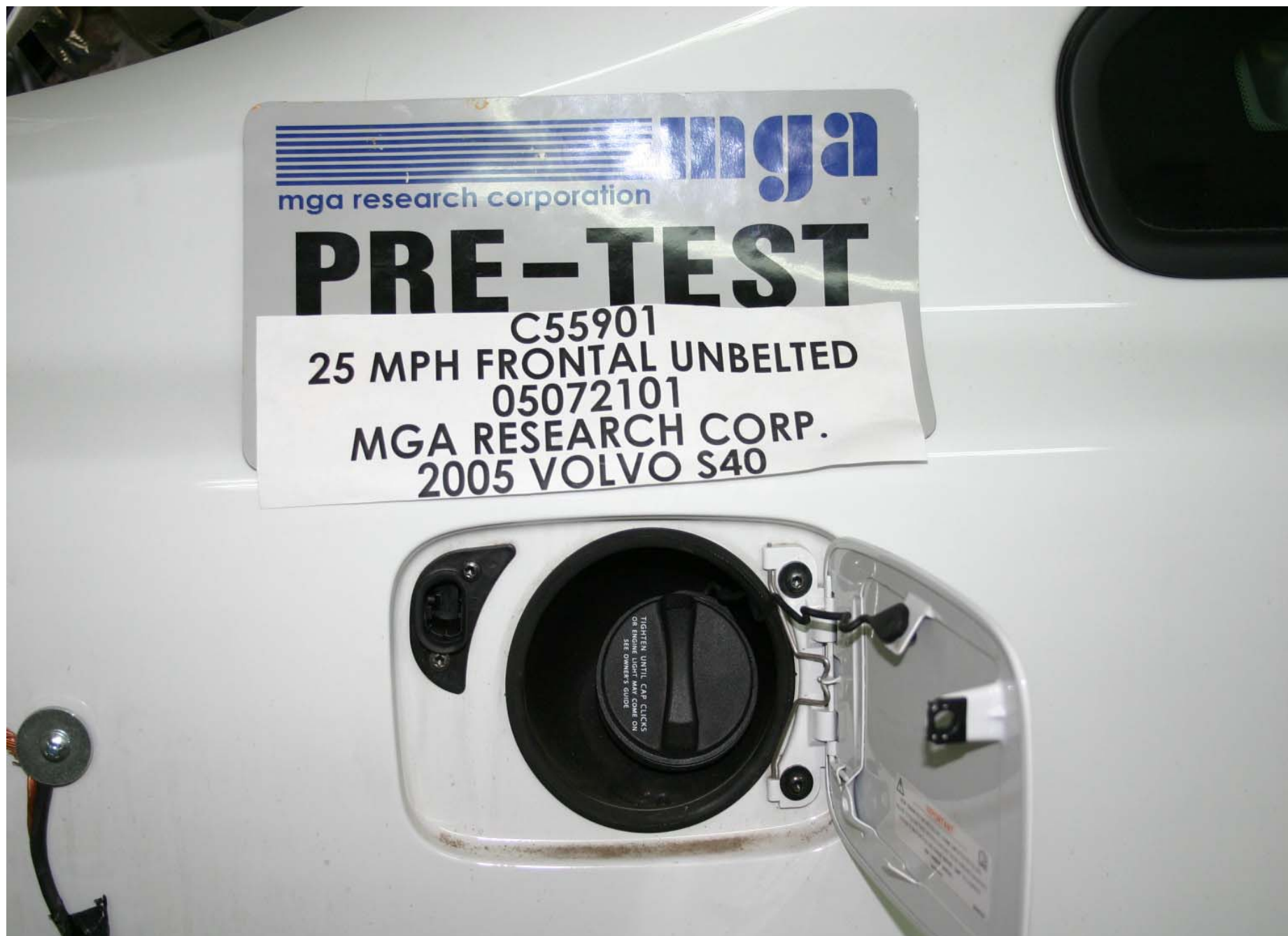
Post-Test Windshield View



Pre-Test Engine Compartment View



Post-Test Engine Compartment View



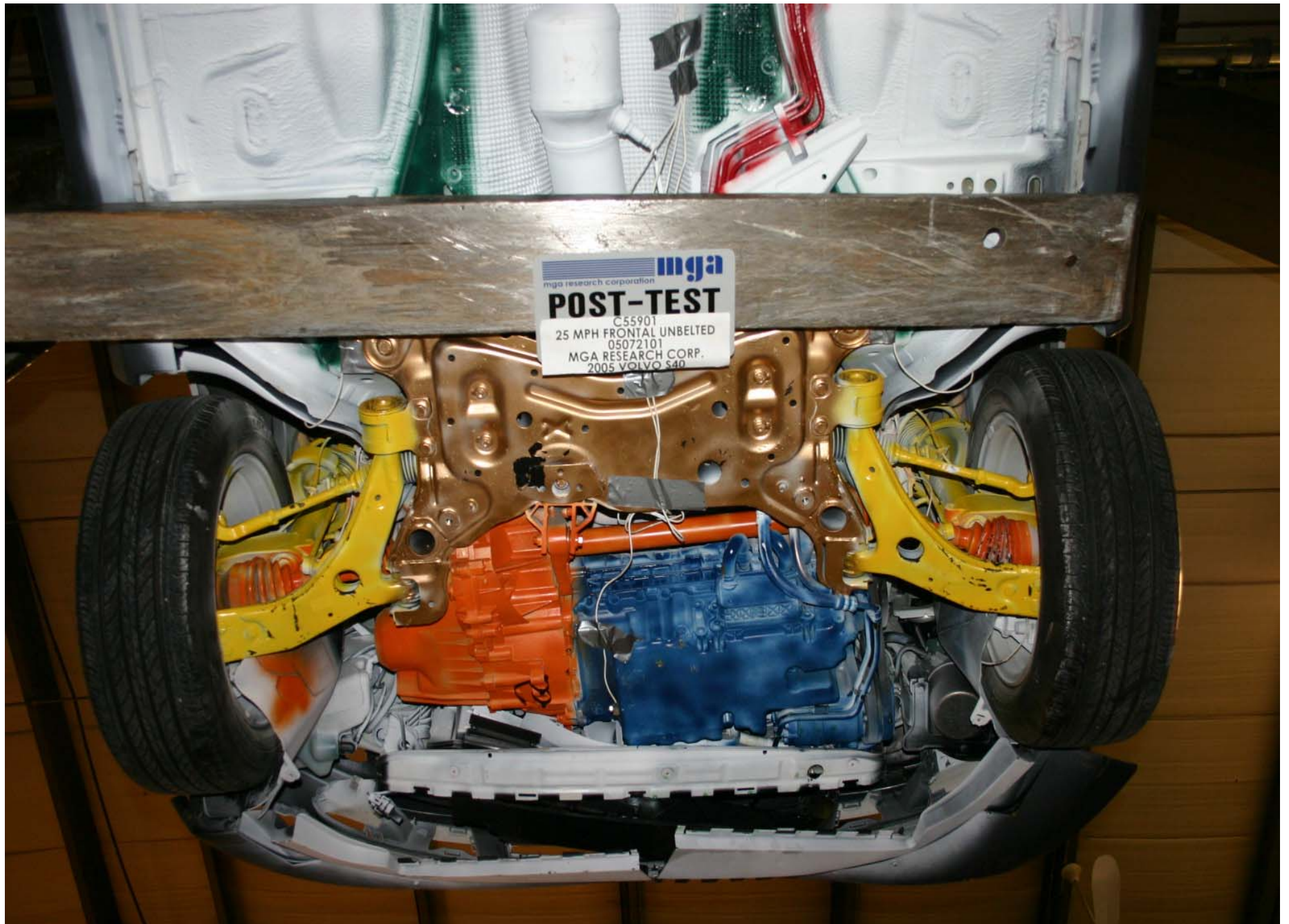
Pre-Test Fuel Filler Cap View



Post-Test Fuel Filler Cap View



Pre-Test Front Underbody View



Post-Test Front Underbody View



Pre-Test Mid Underbody View



Post-Test Mid Underbody View



Pre-Test Rear Underbody View



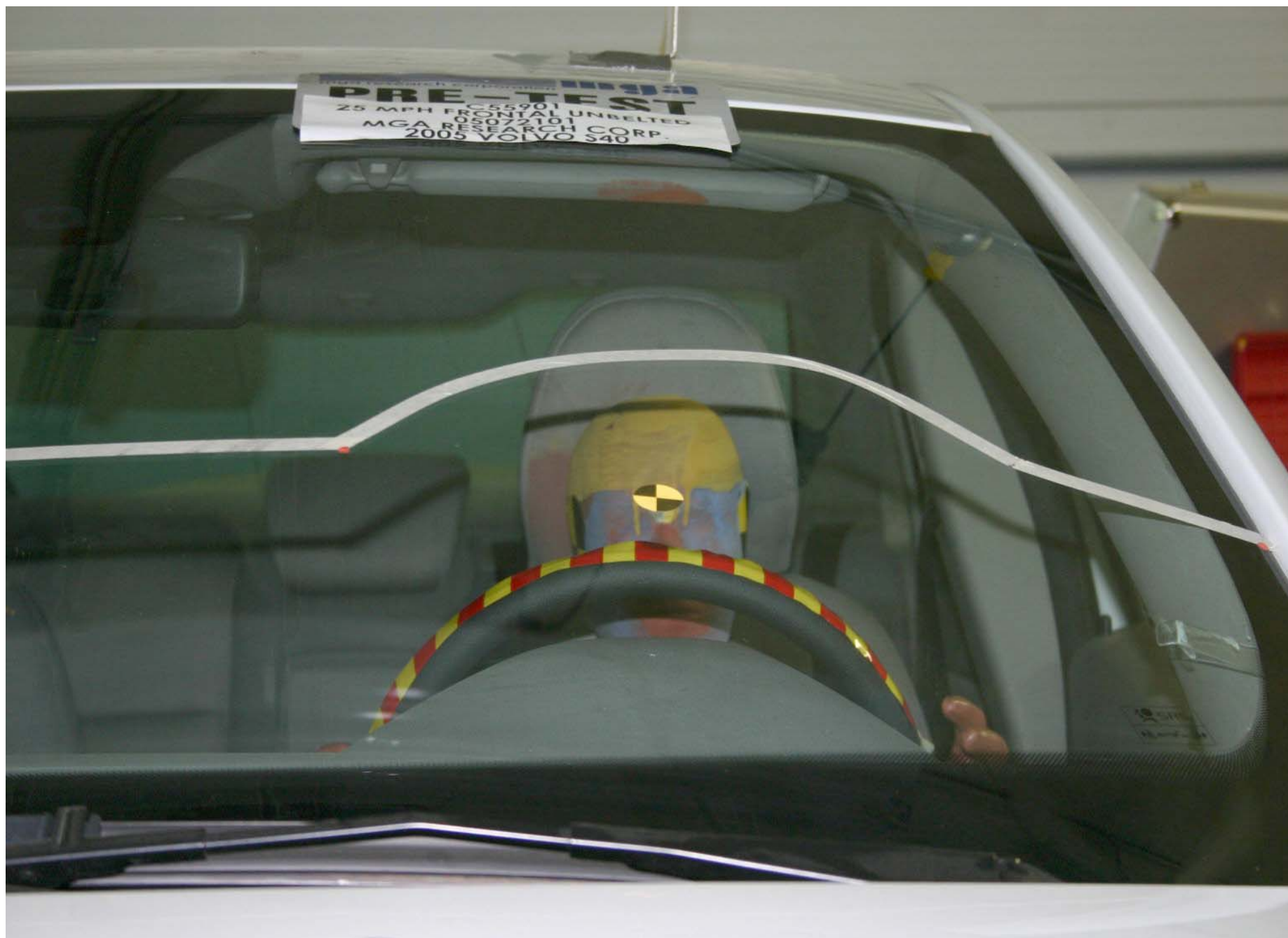
Post-Test Rear Underbody View



Pre-Test Fuel Tank View



Post-Test Fuel Tank View



Pre-Test Driver Dummy Front View (head position)



Post-Test Driver Dummy Front View (head position)



Pre-Test Driver Dummy Position Left Side View



Post-Test Driver Dummy Position Left Side View



Pre-Test Driver Dummy Position Left Side View (Door Open)



Post-Test Driver Dummy Position Left Side View (Door Open)



Pre-Test Driver Dummy Seat Position



Post-Test Driver Dummy Seat Position



Pre-Test Driver Dummy Feet Position



Post-Test Driver Dummy Feet Position



Pre-Test Driver Side Knee Bolster View



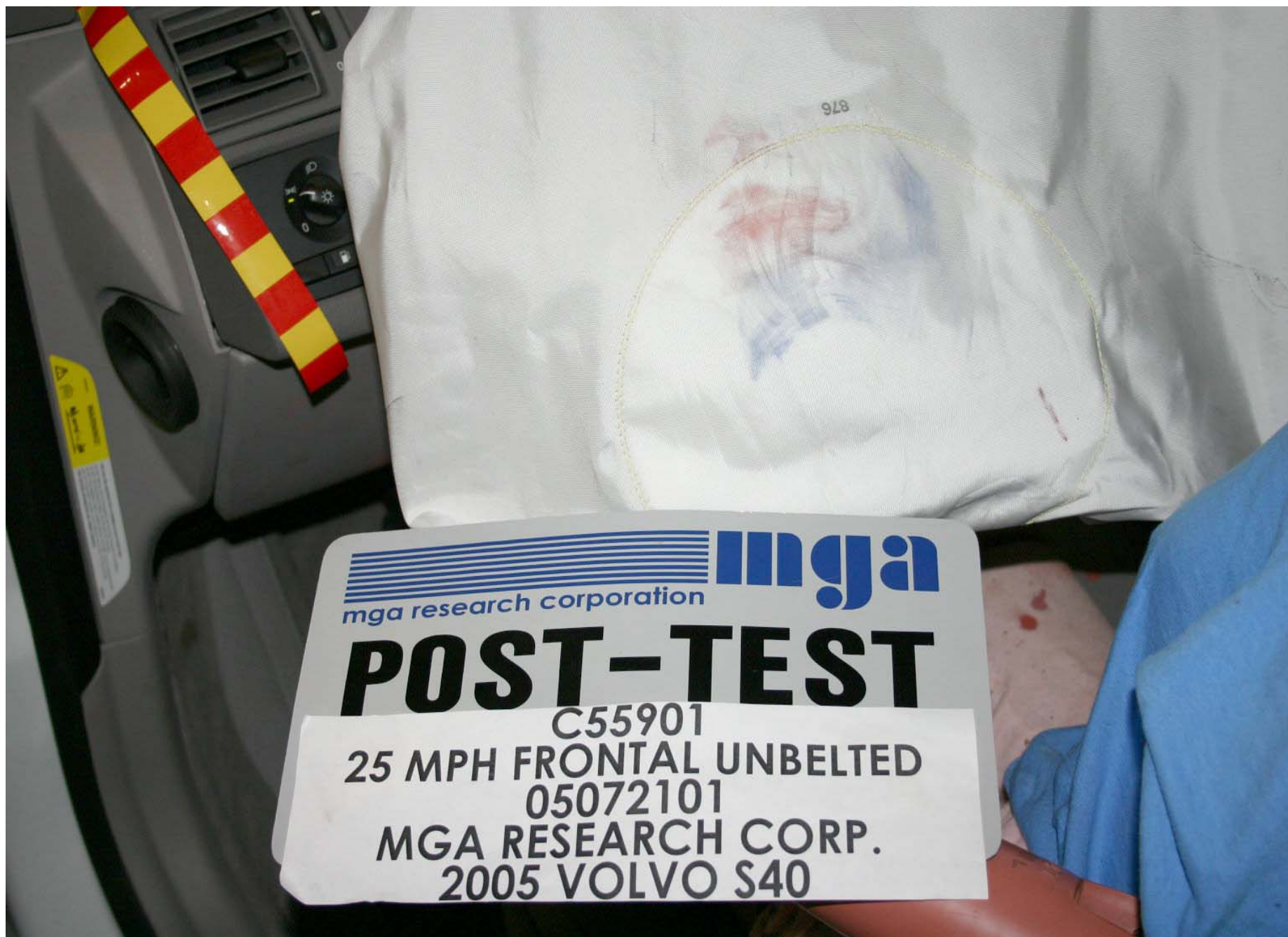
Post-Test Driver Side Knee Bolster View



Post-Test Driver Dummy Head Contact (headrest)



Post-Test Driver Dummy Knee Contact



Post-Test Driver Dummy Airbag Contact



Pre-Test Passenger Dummy Front View (head position)



Post-Test Passenger Dummy Front View (head position)



Pre-Test Passenger Dummy Position Right Side View



Post-Test Passenger Dummy Position Right Side View



Pre-Test Passenger Dummy Position Right Side View (Door Open)



Post-Test Passenger Dummy Position Right Side View (Door Open)



Pre-Test Passenger Dummy Seat Position



Post-Test Passenger Dummy Seat Position



Pre-Test Passenger Dummy Feet Position



Post-Test Passenger Dummy Feet Position



Pre-Test Passenger Side Knee Bolster View



Post-Test Passenger Side Knee Bolster View



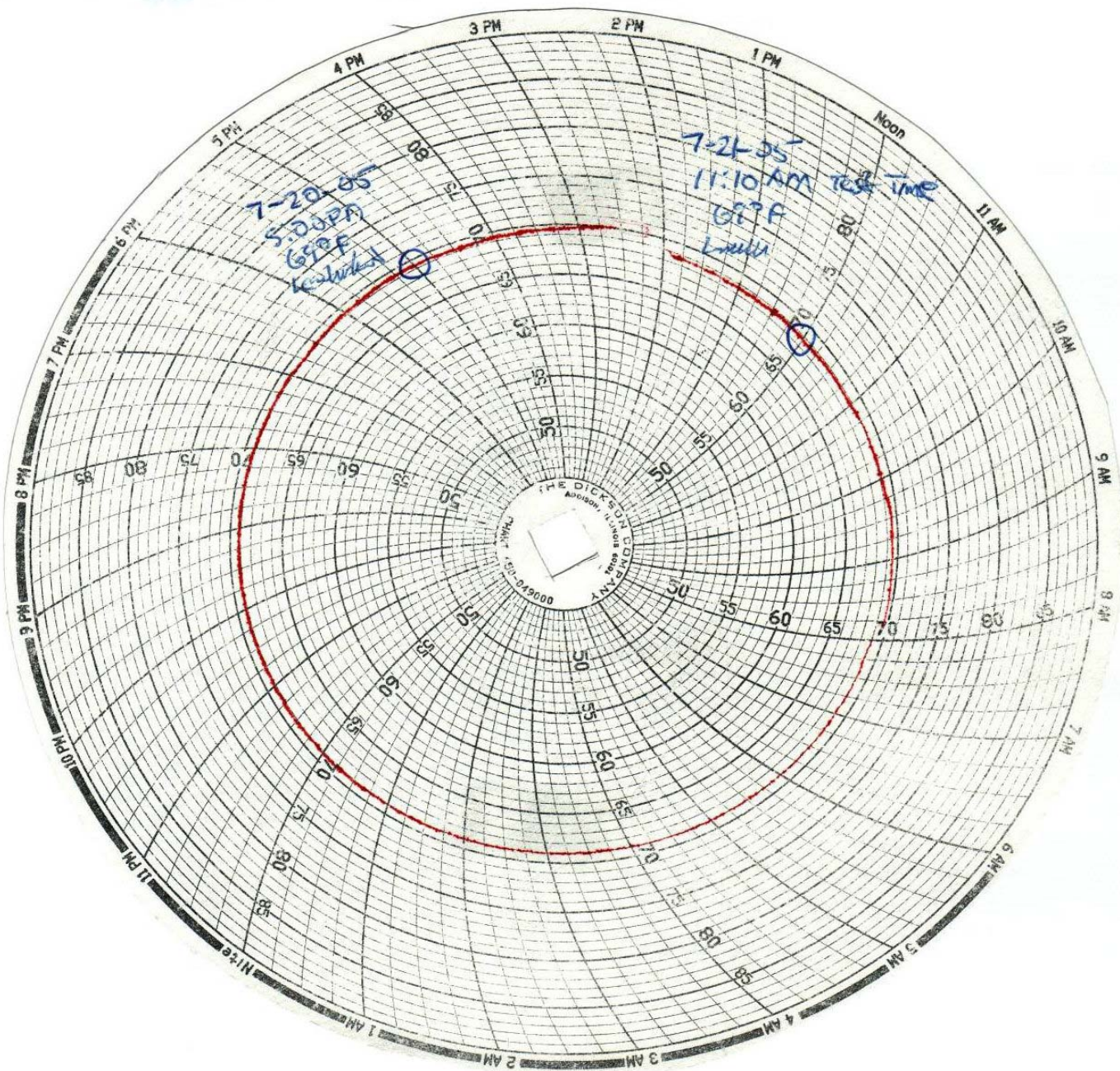
Post-Test Passenger Dummy Knee Contact



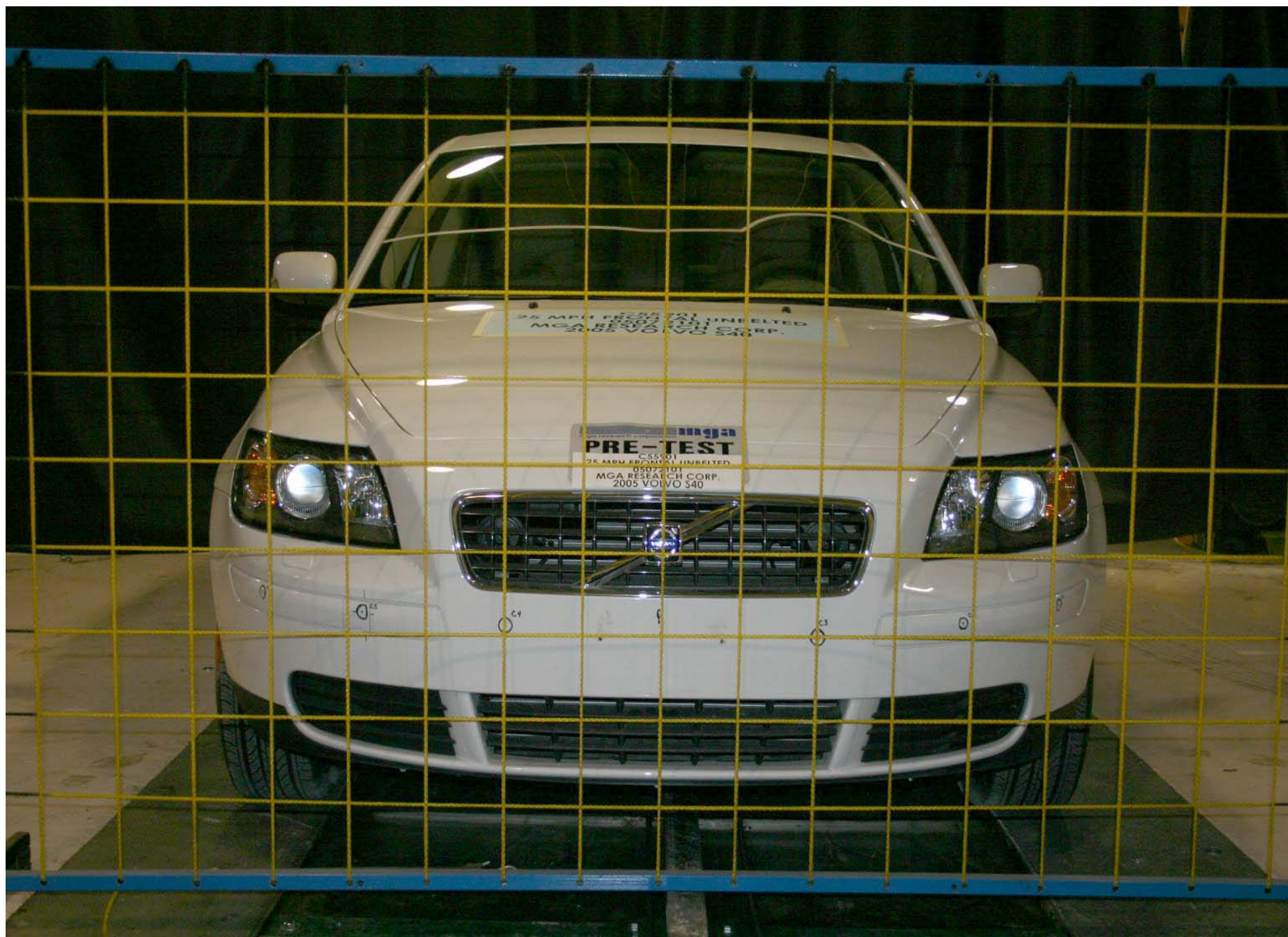
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Vehicle Impact



Temperature Plot



Vehicle in Relation to The Load Cell Grid

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Pre-Test 5th Fem. P1 Driver Dummy Left Side View (Door Open)



Post-Test 5th Fem. P1 Driver Dummy Left Side View (Door Open)



Pre-Test 5th Fem. P1 Driver Dummy Right Side View (Door Open)



Post-Test 5th Fem. P1 Driver Dummy Right Side View (Door Open)



Pre-Test 5th Fem. P1 Driver Dummy Left Side Head Position View



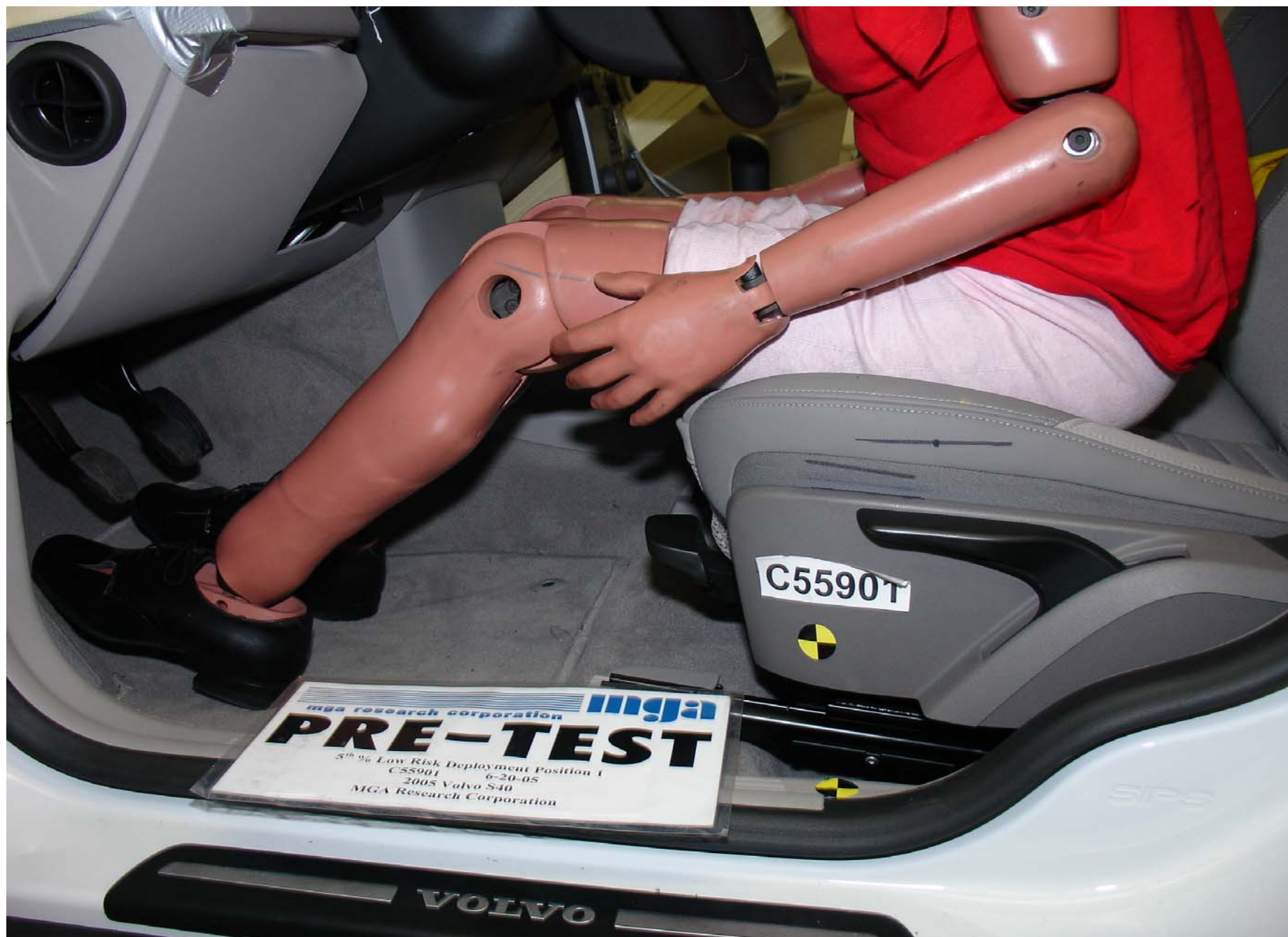
Post-Test 5th Fem. P1 Driver Dummy Left Side Head Position View



Pre-Test 5th Fem. P1 Driver Dummy Right Side Head Position View



Post-Test 5th Fem. P1 Driver Dummy Right Side Head Position View



Pre-Test 5th Fem. P1 Driver Dummy Left Side Mid Position View



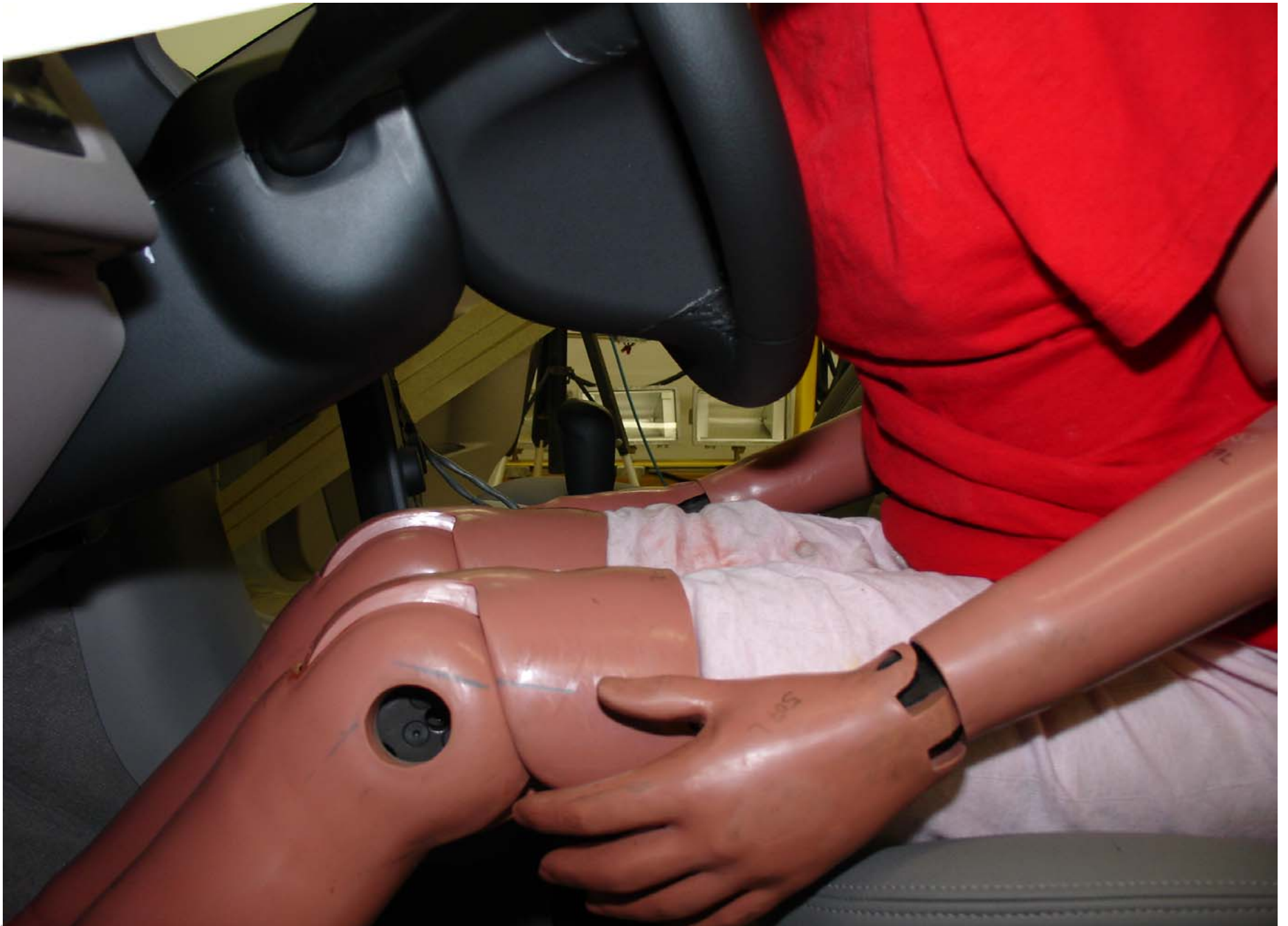
Post-Test 5th Fem. P1 Driver Dummy Left Side Mid Position View



Pre-Test 5th Fem. P1 Driver Dummy Right Side Mid Position View



Post-Test 5th Fem. P1 Driver Dummy Right Side Mid Position View



Pre-Test 5th Fem. P1 Driver Dummy Left Side Knee Position View



Post-Test 5th Fem. P1 Driver Dummy Left Side Knee Position View



Pre-Test 5th Fem. P1 Driver Dummy Right Side Knee Position View



Post-Test 5th Fem. P1 Driver Dummy Airbag Left View



Post-Test 5th Fem. P1 Driver Dummy Airbag Right View



Pre-Test 5th Fem. P2 Driver Dummy Left Side View (Door Open)



Post-Test 5th Fem. P2 Driver Dummy Left Side View (Door Open)



Pre-Test 5th Fem. P2 Driver Dummy Right Side View (Door Open)



Post-Test 5th Fem. P2 Driver Dummy Right Side View (Door Open)



Pre-Test 5th Fem. P2 Driver Dummy Left Side Head Position View



Post-Test 5th Fem. P2 Driver Dummy Left Side Head Position View



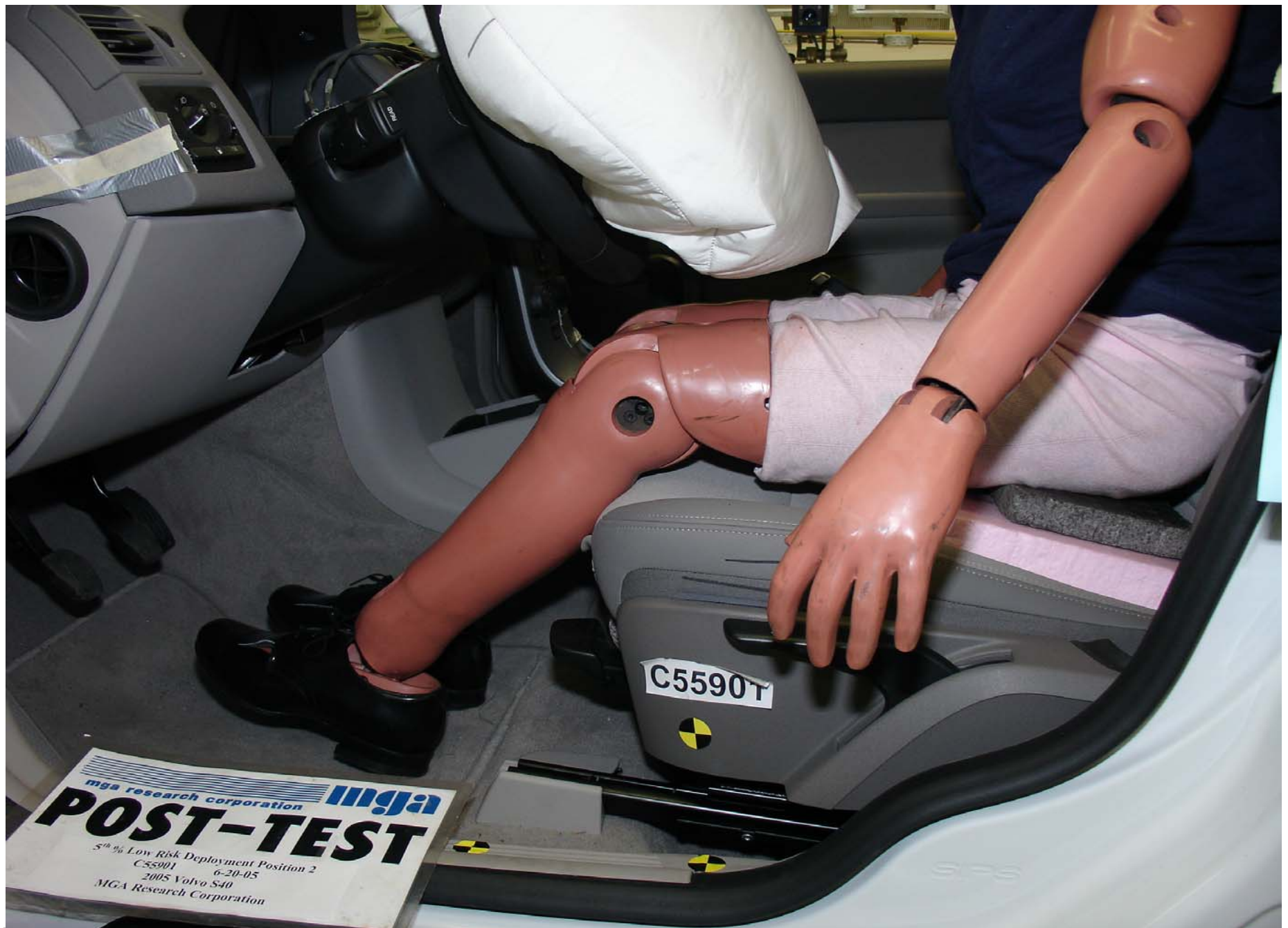
Pre-Test 5th Fem. P2 Driver Dummy Right Side Head Position View



Post-Test 5th Fem. P2 Driver Dummy Right Side Head Position View



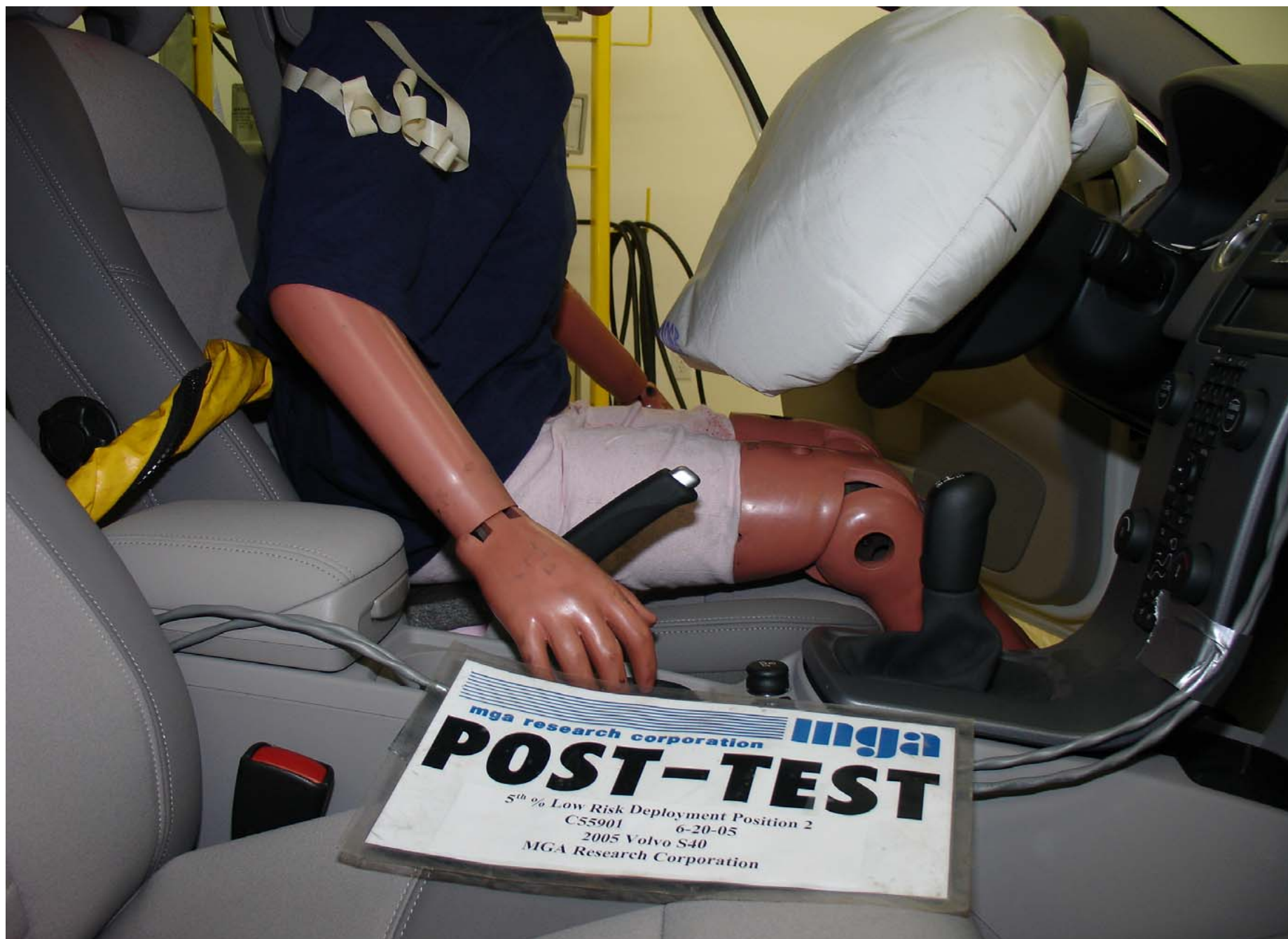
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Post-Test 5th Fem. P2 Driver Dummy Left Side Mid Position View



Pre-Test 5th Fem. P2 Driver Dummy Right Side Mid Position View



Post-Test 5th Fem. P2 Driver Dummy Right Side Mid Position View



Pre-Test 5th Fem. P2 Driver Dummy Left Side Knee Position View



Pre-Test 5th Fem. P2 Driver Dummy Right Side Knee Position View



Post-Test 5th Fem. P2 Driver Dummy Right Side Knee Position View



Post-Test 5th Fem. P2 Driver Dummy Airbag Left View



Post-Test 5th Fem. P2 Driver Dummy Airbag Right View



Driver Airbag Geometric Center (2005 Volvo S40)

APPENDIX E
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DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
Newborn Section A Car Bed



Cosco Dream Ride Car Bed With Belt, Middle Seat Track



Cosco Dream Ride Car Bed With Belt, Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Britax Handle With Care 191 With Belt, Forward Seat Track,
Handle Down



Britax Handle With Care 191 With Belt, Middle Seat Track,
Handle Down



Britax Handle With Care 191 With Belt, Rearward Seat Track,
Handle Down



Britax Handle With Care 191 Unbelted, Forward Seat Track,
Handle Down

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Britax Handle With Care 191 Unbelted, Middle Seat Track, Handle Down



Britax Handle With Care 191 Unbelted, Rearward Seat Track, Handle Down



Britax Handle With Care 191 Fwd Facing Unbelted, Forward Seat Track, Handle Down



Britax Handle With Care 191 Fwd Facing Unbelted, Middle Seat Track, Handle Down

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Britax Handle With Care 191 Fwd Facing Unbelted, Rearward
Seat Track, Handle Down



Unbelted 5th Percentile Female Reactivation, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Evenflo First Choice 204 With Belt, Middle Seat Track, Handle Up



Evenflo First Choice 204 With Belt, Rearward Seat Track, Handle Down



Evenflo First Choice 204 Unbelted, Middle Seat Track, Handle Up



Evenflo First Choice 204 Unbelted, Rearward Seat Track, Handle Down

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Evenflo First Choice 204 Fwd Facing Unbelted,
Forward Seat Track, Handle Up



Evenflo First Choice 204 Fwd Facing Unbelted,
Middle Seat Track, Handle Up



Evenflo First Choice 204 Fwd Facing Unbelted,
Rearward Seat Track, Handle Up



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Graco Infant W/ Base With Belt, Middle Seat Track, Handle Up



Graco Infant W/ Base With Belt, Rearward Seat Track, Handle Down



Graco Infant W/ Base Unbelted, Middle Seat Track, Handle Up



Graco Infant W/ Base Unbelted, Rearward Seat Track, Handle Down

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Graco Infant W/ Base Fwd Facing Unbelted, Forward Seat Track, Handle Up



Graco Infant W/ Base Fwd Facing Unbelted, Middle Seat Track, Handle Up



Graco Infant W/ Base Fwd Facing Unbelted, Rearward Seat Track, Handle Up

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Graco Infant W/O Base With Belt, Middle Seat Track,
Handle Up



Graco Infant W/O Base With Belt, Rearward Seat Track,
Handle Down



Graco Infant W/O Base Unbelted, Middle Seat Track,
Handle Up



Graco Infant W/O Base Unbelted, Rearward Seat Track,
Handle Down

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section B

Rear Facing CRS



Graco Infant W/O Base Fwd Facing Unbelted,
Forward Seat Track, Handle Up



Graco Infant W/O Base Fwd Facing Unbelted,
Middle Seat Track, Handle Up



Graco Infant W/O Base Fwd Facing Unbelted,
Rearward Seat Track, Handle Up



Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Fwd Facing With Belt,
Forward Seat Track



Britax Roundabout 161 Fwd Facing With Belt,
Middle Seat Track



Britax Roundabout 161 Fwd Facing With Belt,
Rearward Seat Track



Britax Roundabout 161 Fwd Facing Unbelted,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Fwd Facing Unbelted,
Middle Seat Track



Britax Roundabout 161 Fwd Facing Unbelted,
Rearward Seat Track



Britax Roundabout 161 Rear Facing With Belt,
Forward Seat Track



Britax Roundabout 161 Rear Facing With Belt,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Britax Roundabout 161 Rear Facing With Belt,
Rearward Seat Track



Britax Roundabout 161 Rear Facing Unbelted,
Forward Seat Track



Britax Roundabout 161 Rear Facing Unbelted,
Middle Seat Track



Britax Roundabout 161 Rear Facing Unbelted,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Century Encore Fwd Facing With Belt,
Forward Seat Track



Century Encore Fwd Facing With Belt,
Middle Seat Track



Century Encore Fwd Facing With Belt,
Rearward Seat Track



Century Encore Fwd Facing Unbelted,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Century Encore Fwd Facing Unbelted,
Middle Seat Track



Century Encore Fwd Facing Unbelted,
Rearward Seat Track



Century Encore Rear Facing With Belt,
Forward Seat Track



Century Encore Rear Facing With Belt,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Century Encore Rear Facing With Belt,
Rearward Seat Track



Century Encore Rear Facing Unbelted,
Forward Seat Track



Century Encore Rear Facing Unbelted,
Middle Seat Track



Century Encore Rear Facing Unbelted,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Fwd Facing With Belt,
Forward Seat Track



Evenflo Medallion 254 Fwd Facing With Belt,
Middle Seat Track



Evenflo Medallion 254 Fwd Facing With Belt,
Rearward Seat Track



Evenflo Medallion 254 Fwd Facing Unbelted,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Fwd Facing Unbelted,
Middle Seat Track



Evenflo Medallion 254 Fwd Facing Unbelted,
Rearward Seat Track



Evenflo Medallion 254 Rear Facing With Belt,
Forward Seat Track



Evenflo Medallion 254 Rear Facing With Belt,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Evenflo Medallion 254 Rear Facing With Belt,
Rearward Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,
Forward Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,
Middle Seat Track



Evenflo Medallion 254 Rear Facing Unbelted,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

12 Month

Section C

Forward Facing Convertible CRS



Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Convertible CRS



3-Year-Old Fwd Facing Britax Roundabout Belted,
Forward Seat Track



3-Year-Old Fwd Facing Britax Roundabout Belted,
Middle Seat Track



3-Year-Old Fwd Facing Britax Roundabout Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Convertible CRS



3-Year-Old Fwd Facing Century Encore Belted,
Middle Seat Track



3-Year-Old Fwd Facing Century Encore Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Convertible CRS



3-Year-Old Fwd Facing Evenflo Medallion Belted,
Forward Seat Track



3-Year-Old Fwd Facing Evenflo Medallion Belted,
Middle Seat Track



3-Year-Old Fwd Facing Evenflo Medallion Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Toddler

Belt Positioning



3-Year-Old Century Next Step Belted,
Forward Seat Track



3-Year-Old Century Next Step Belted,
Middle Seat Track



3-Year-Old Century Next Step Belted,
Rearward Seat Track



3-Year-Old Century Next Step Cinched With Harness,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Toddler

Belt Positioning



3-Year-Old Century Next Step Cinched With Harness,
Middle Seat Track



3-Year-Old Century Next Step Cinched With Harness,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Toddler

Belt Positioning



3-Year-Old Cosco High Back Booster Belted,
Middle Seat Track



3-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track



3-Year-Old Cosco High Back Booster Cinched With Harness,
Middle Seat Track



3-Year-Old Cosco High Back Booster Cinched With Harness,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

3 Year Old

Section C

Forward Facing Toddler

Belt Positioning



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

6 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



6-Year-Old Century Next Step Belted,
Forward Seat Track



6-Year-Old Century Next Step Belted,
Middle Seat Track



6-Year-Old Century Next Step Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

6 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



6-Year-Old Cosco High Back Booster Belted,
Forward Seat Track



6-Year-Old Cosco High Back Booster Belted,
Middle Seat Track



6-Year-Old Cosco High Back Booster Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)

6 Year Old

Section D

Forward Facing Toddler

Belt Positioning Booster Seat



6-Year-Old Evenflo Right Fit Belted,
Forward Seat Track



6-Year-Old Evenflo Right Fit Belted,
Middle Seat Track



6-Year-Old Evenflo Right Fit Belted,
Rearward Seat Track



Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
3 Year Old No CRS



3-Year-Old Unbelted, Forward Seat Track, Position 1



3-Year-Old Unbelted, Forward Seat Track, Position 2



3-Year-Old Unbelted, Forward Seat Track, Position 3



3-Year-Old Unbelted, Forward Seat Track, Position 4

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
3 Year Old No CRS



3-Year-Old Unbelted, Forward Seat Track, Position 5



3-Year-Old Unbelted, Forward Seat Track, Position 6



3-Year-Old Unbelted, Forward Seat Track, Position 7



3-Year-Old Unbelted, Middle Seat Track, Position 1

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
3 Year Old No CRS



3-Year-Old Unbelted, Middle Seat Track, Position 2



3-Year-Old Unbelted, Middle Seat Track, Position 3



3-Year-Old Unbelted, Middle Seat Track, Position 4



3-Year-Old Unbelted, Middle Seat Track, Position 5

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
3 Year Old No CRS



3-Year-Old Unbelted, Middle Seat Track, Position 6



3-Year-Old Unbelted, Middle Seat Track, Position 7



3-Year-Old Unbelted, Rearward Seat Track, Position 1



3-Year-Old Unbelted, Rearward Seat Track, Position 2

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
3 Year Old No CRS



3-Year-Old Unbelted, Rearward Seat Track, Position 3



3-Year-Old Unbelted, Rearward Seat Track, Position 4



3-Year-Old Unbelted, Rearward Seat Track, Position 5



3-Year-Old Unbelted, Rearward Seat Track, Position 6

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
3 Year Old No CRS



3-Year-Old Unbelted, Rearward Seat Track, Position 7



Unbelted 5th Percentile Female Reactivation, Middle Seat Track

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
6 Year Old No CRS



6-Year-Old Unbelted, Forward Seat Track, Position 1



6-Year-Old Unbelted, Forward Seat Track, Position 2



6-Year-Old Unbelted, Forward Seat Track, Position 3



6-Year-Old Unbelted, Middle Seat Track, Position 1

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
6 Year Old No CRS



6-Year-Old Unbelted, Middle Seat Track, Position 2



6-Year-Old Unbelted, Middle Seat Track, Position 3



6-Year-Old Unbelted, Middle Seat Track, Position 4



6-Year-Old Unbelted, Middle Seat Track, Position 4, View 2

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
6 Year Old No CRS



6-Year-Old Unbelted, Rearward Seat Track, Position 1



6-Year-Old Unbelted, Rearward Seat Track, Position 2



6-Year-Old Unbelted, Rearward Seat Track, Position 3



6-Year-Old Unbelted, Rearward Seat Track, Position 4

DOT/NHTSA 208 Suppression Test – 2005 Volvo S40 (C55901)
6 Year Old No CRS



6-Year-Old Unbelted, Rearward Seat Track, Position 4, View 2



Unbelted 5th Percentile Female Reactivation, Middle Seat Track

APPENDIX F
INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 511

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AJ819	Endevco	01/26/05
Head Y	AJ9J7	Endevco	01/26/05
Head Z	AJ7A2	Endevco	01/26/05
Neck Load Cell	1561	Denton	02/09/05
Chest X	ACCW9	Endevco	04/29/05
Chest Y	AAMN8	Endevco	04/29/05
Chest Z	ACC61	Endevco	04/29/05
Chest Displacement	511	Servo	06/13/05
Left Femur Load Cell	9428	GSE	03/07/05
Right Femur Load Cell	9427	GSE	03/07/05

INSTRUMENTS FOR PASSENGER DUMMY NO. 516

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	C09-Y11	Entran	03/31/05
Head Y	C09-Y02	Entran	03/31/05
Head Z	C09-Y19	Entran	03/31/05
Neck Load Cell	1703	Denton	04/04/05
Chest X	AMTB1	Endevco	06/03/05
Chest Y	J20298	Endevco	06/03/05
Chest Z	P26993	Endevco	06/03/05
Chest Displacement	516	Servo	06/13/05
Left Femur Load Cell	86	Denton	05/23/05
Right Femur Load Cell	85	Denton	05/23/05

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO. 507 (P1)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	J14007	Endevco	02/02/05
Head Y	J13424	Endevco	02/02/05
Head Z	AN9E3	Endevco	02/02/05
Neck Load Cell	252	Denton	05/02/05
Chest X	J10431	Endevco	02/02/05
Chest Y	J13630	Endevco	02/02/05
Chest Z	J33415	Endevco	02/02/05
Chest Displacement	507	Servo	05/24/05
Left Femur Load Cell	9426	GSE	02/14/05
Right Femur Load Cell	9425	GSE	02/14/05

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO. 510 (P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	C15-Z02	Entran	03/11/05
Head Y	A12-Z12	Entran	03/11/05
Head Z	C17-J01	Entran	03/11/05
Neck Load Cell	606	Denton	05/17/05
Chest X	J13943	Endevco	03/11/05
Chest Y	AGTY6	Endevco	03/11/05
Chest Z	AALH1	Endevco	03/11/05
Chest Displacement	510	Servo	05/24/05
Left Femur Load Cell	959	GSE	02/14/05
Right Femur Load Cell	950	GSE	02/14/05

VEHICLE INSTRUMENTS

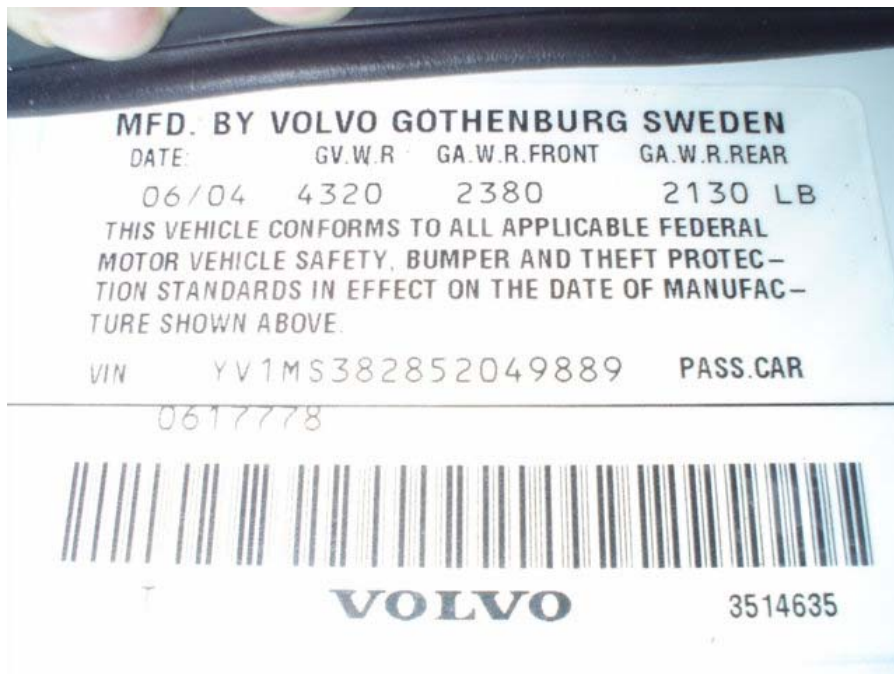
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	C15-L21	Entran	04/22/05
Right Rear Seat Crossmember X	B28-Z12	Entran	03/17/05
Top of Engine X	B19-Z02	Entran	03/09/05
Bottom of Engine X	C15-L23	Entran	04/22/05
Left Brake Caliper X	C15-L12	Entran	04/22/05
Right Brake Caliper X	B16-Z09	Entran	03/03/05
Instrument Panel X	C04-L15	Entran	03/24/05
Trunk Z	B28-Z22	Entran	03/17/05

APPENDIX G

NOTICE OF TEST FAILURE



Air bag maintenance label located on driver-side C pillar



Volvo S40 certification label

LABORATORY NOTICE OF APPARENT TEST FAILURE TO OVSC

FMVSS NO. 208 TEST DATE: July 21, 2005

LABORATORY: MGA Research Corporation

CONTRACT NO.: DTNH22-03-D-11002 DELV. ORDER NO.: #3

LABORATORY PROJECT ENGINEER'S NAME: Jeff Lewandowski

TEST SPECIMEN DESCRIPTION: 2005 Volvo S40 Passenger Car

VEHICLE NHTSA NO.: C55901 VIN: YV1MS382852049889

MFR: Volvo

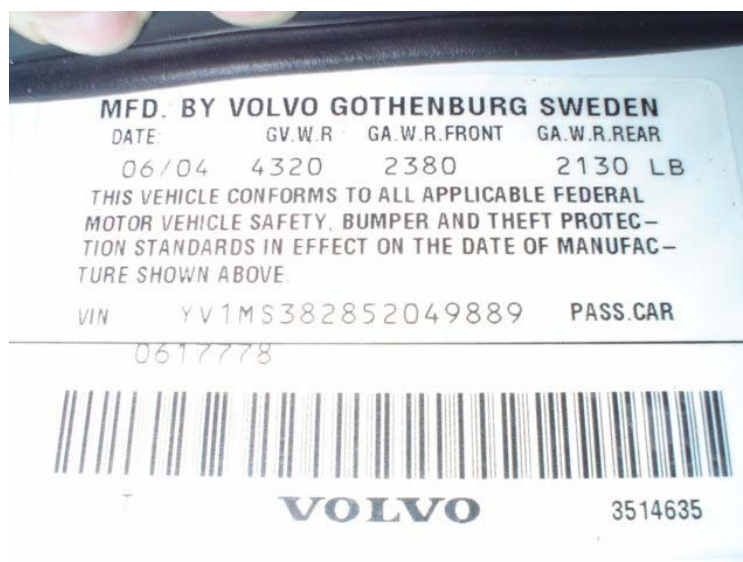
APPARENT TEST FAILURE DESCRIPTION: The 5th Passenger Dummy SN516 had a Compression Flexion Neck Injury of 1.5 at a 57.8 ms time during the 25mph unbelted frontal impact test.

FMVSS REQUIREMENT, PARAGRAPH S 16.1 :
S16.1 Neck Injury (Critical values: Compression = 3880N; Flexion = 155Nm) The Neck Injury value shall not exceed 1.0 at any time during the event.

NOTIFICATION TO NHTSA (COTR): Charles Case

DATE: 7-21-2005 BY: Jeff Lewandowski

REMARKS: See included photograph of the certification label.



Volvo S40 certification label